Message

From: woods.clint@epa.gov [woods.clint@epa.gov]
Sent: 3/12/2019 5:19:23 PM
To: Lubetsky, Jonathan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=e125d09a658e48119789ccae5712b4a5-JLUBETSK]
Subject: Fwd: Prompt Response Required--Carper SAB Letter
Attachments: 11-15-18TCetaltoEPAscienceadvisors.pdf; ATT00001.htm

Jonathan,

Have we done anything else on this front?

Begin forwarded message:

> **From:** "Lyons, Troy" <lyons.troy@epa.gov>
> **Date:** March 12, 2019 at 12:06:08 PM EDT
> **To:** "Knapp, Kristien" <Knapp.Kristien@epa.gov>, "Moody, Christina" <Moody.Christina@epa.gov>, "Woods, Clint" <woods.clint@epa.gov>, "Brennan, Thomas" <Brennan.Thomas@epa.gov>
> **Cc:** "Dunlap, David" <dunlap.david@epa.gov>, "Frye, Tony (Robert)" <frye.robert@epa.gov>, "Voyles, Travis" <Voyles.Travis@epa.gov>, "English, Katherine" <english.katherine@epa.gov>, "Jackson, Ryan" <jackson.ryan@epa.gov>
> **Subject: Prompt Response Required--Carper SAB Letter**

Deliberative Process / Ex. 5

Clint—this is the update that RJ mentioned in his previous email to you.

> **From:** Lyons, Troy
> **Sent:** Wednesday, November 28, 2018 1:13 PM
> **To:** Knapp, Kristien <Knapp.Kristien@epa.gov>; Moody, Christina <Moody.Christina@epa.gov>; Woods, Clint <woods.Clint@epa.gov>
> **Cc:** Brennan, Thomas <Brennan.Thomas@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Lovell, Will (William) <lovell.william@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>; Kime, Robin <Kime.Robin@epa.gov>
> **Subject:** RE: Carper SAB Letter

LATEST

Deliberative Process / Ex. 5

From: Knapp, Kristien
Sent: Wednesday, November 28, 2018 12:11 PM
To: Moody, Christina <Moody.Christina@epa.gov>; Woods, Clint <woods.Clint@epa.gov>; Lyons, Troy <lyons.troy@epa.gov>
Cc: Brennan, Thomas <Brennan.Thomas@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Lovell, Will (William) <lovell.william@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>; Kime, Robin <Kime.Robin@epa.gov>
Subject: RE: Carper SAB Letter

Deliberative Process / Ex. 5

Kristien Knapp
Legislative and Oversight Counsel
Office of Congressional Affairs
U.S. Environmental Protection Agency
(202) 564-3277

From: Moody, Christina
Sent: Wednesday, November 28, 2018 12:02 PM
To: Woods, Clint <woods.Clint@epa.gov>; Lyons, Troy <lyons.troy@epa.gov>
Cc: Brennan, Thomas <Brennan.Thomas@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Lovell, Will (William) <lovell.william@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>; Kime, Robin <Kime.Robin@epa.gov>; Knapp, Kristien <Knapp.Kristien@epa.gov>
Subject: RE: Carper SAB Letter

Adding Kristien Knapp from OCIR's oversight team.

Christina J. Moody | Office of Congressional & Intergovernmental Relations
U.S. Environmental Protection Agency | 1200 Pennsylvania Ave NW (MC-1301A) | Washington DC | 20460
Moody.Christina@epa.gov

From: Woods, Clint
Sent: Wednesday, November 28, 2018 12:01 PM
To: Lyons, Troy <lyons.troy@epa.gov>
Cc: Brennan, Thomas <Brennan.Thomas@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Lovell, Will (William) <lovell.william@epa.gov>; Palich, Christian

<palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>; Kime, Robin <Kime.Robin@epa.gov>; Moody, Christina <Moody.Christina@epa.gov>
Subject: RE: Carper SAB Letter

Deliberative Process / Ex. 5

I believe there may be an additional Carper response that is part of the confusion.

From: Lyons, Troy
Sent: Wednesday, November 28, 2018 11:43 AM
To: Woods, Clint <woods.clint@epa.gov>
Cc: Brennan, Thomas <Brennan.Thomas@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Lovell, Will (William) <lovell.william@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>; Kime, Robin <Kime.Robin@epa.gov>; Moody, Christina <Moody.Christina@epa.gov>
Subject: RE: Carper SAB Letter
Importance: High

Removing Ryan.

Deliberative Process / Ex. 5

From: Moody, Christina
Sent: Wednesday, November 28, 2018 11:28 AM
To: Lyons, Troy <lyons.troy@epa.gov>
Cc: Brennan, Thomas <Brennan.Thomas@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Lovell, Will (William) <lovell.william@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>; Kime, Robin <Kime.Robin@epa.gov>
Subject: Re: Carper SAB Letter

Troy,

I originally assigned this letter to the SAB for response. Based on your emails, there's some confusion as to whether OP or SAB should now be drafting the response.

Please clarify so that we are all on the same page.

Thanks,

Christina J. Moody
US Environmental Protection Agency
Office of Congressional and Intergovernmental Relations
Moody.Christina@epa.gov

On Nov 28, 2018, at 11:00 AM, Lyons, Troy <lyons.troy@epa.gov> wrote:

Thank you for the clarification.

Deliberative Process / Ex. 5

From: Brennan, Thomas
Sent: Wednesday, November 28, 2018 10:57 AM
To: Lyons, Troy <lyons.troy@epa.gov>
Cc: Bolen, Brittany <bolen.brittany@epa.gov>; Lovell, Will (William) <lovell.william@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>
Subject: Re: Carper SAB Letter

To be clear, SABSO has not answered the letter we are just trying to route it to OP in CMS. Will look into the routing now.

Tom

Sent from my iPhone

On Nov 28, 2018, at 10:56 AM, Lyons, Troy <lyons.troy@epa.gov> wrote:

> Here is the incoming letter from Carper
>
> **From:** Lyons, Troy
> **Sent:** Wednesday, November 28, 2018 10:41 AM
> **To:** Bolen, Brittany <bolen.brittany@epa.gov>
> **Cc:** Lovell, Will (William) <lovell.william@epa.gov>; Brennan, Thomas <Brennan.Thomas@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>
> **Subject:** RE: Carper SAB Letter
>
> Also, Tom—could you send your letter to OP?
>
> **From:** Lyons, Troy
> **Sent:** Wednesday, November 28, 2018 10:34 AM
> **To:** Bolen, Brittany <bolen.brittany@epa.gov>
> **Cc:** Lovell, Will (William) <lovell.william@epa.gov>; Brennan, Thomas <Brennan.Thomas@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>
> **Subject:** RE: Carper SAB Letter
>
> Tony/CP—please send OP the original Nov 15th Carper letter.
>
> **From:** Bolen, Brittany
> **Sent:** Wednesday, November 28, 2018 10:32 AM
> **To:** Lyons, Troy <lyons.troy@epa.gov>

Cc: Lovell, Will (William) <lovell.william@epa.gov>; Brennan, Thomas <Brennan.Thomas@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>
Subject: RE: Carper SAB Letter

Just confirmed that we do not have a SAB Carper letter in OP. Please send the original letter and we can certainly work on response.

From: Bolen, Brittany
Sent: Wednesday, November 28, 2018 10:29 AM
To: Lyons, Troy <lyons.troy@epa.gov>
Cc: Lovell, Will (William) <lovell.william@epa.gov>; Brennan, Thomas <Brennan.Thomas@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>
Subject: RE: Carper SAB Letter

Troy, what letter are you referring to? The one we worked with RJ on a week or so ago? Happy to help with any others. Thanks!

From: Lyons, Troy
Sent: Wednesday, November 28, 2018 10:19 AM
To: Bolen, Brittany <bolen.brittany@epa.gov>
Cc: Lovell, Will (William) <lovell.william@epa.gov>; Brennan, Thomas <Brennan.Thomas@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>; Dunlap, David <dunlap.david@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>
Subject: Carper SAB Letter

Brittany—I believe our draft response has been sent to OP for review. Carper's staff just brought this up on a phone call. I think it has just been sent to OP, but we need to have a quick turnaround on our review so we can get it back to Senator Carper. This is tied to our noms. Thanks for your quick review.

Troy M. Lyons
Associate Administrator
Office of Congressional & Intergovernmental Relations
U.S. Environmental Protection Agency
202-309-2490 (cell)

<11-15-18TCetaltoEPAscienceadvisors.pdf>

United States Senate
WASHINGTON, DC 20510

November 15, 2018

The Honorable Andrew Wheeler
Acting Administrator
Environmental Protection Agency
1301 Constitution Ave. NW
Washington, DC 20460

Dear Acting Administrator Wheeler:

We write to request information about the Environmental Protection Agency's (EPA's) recent dismissal and appointment of members to its Clean Air Scientific Advisory Committee (CASAC), its decision to disband two key scientific air pollution advisory panels, and its invitation for public comment on the nomination of 174 scientists to EPA's Science Advisory Board.[1] These actions, taken together with past similar actions, could have the effect of jeopardizing the environment and human health, because they are likely to result in the replacement of renowned scientists who can provide EPA with advice on how to best protect people from the effects of environmental pollution with less qualified, industry representatives who may also have conflicts of interest.

There have been frequent efforts to understand the manner in which EPA is removing and appointing scientists on its federal advisory committees:

- In letters sent to then-Administrator Pruitt in May 2017, Senators Carper[2], Shaheen, and Hassan[3] expressed deep concern about EPA's abrupt dismissal of twelve scientists from EPA's Board of Scientific Counselors, and Senator Carper requested all documents "related to any EPA plans or consideration of plans not to renew the terms of any member of any of EPA's other boards or panels."
- In July 2017, the Government Accountability Office (GAO) accepted a request from 10 Senators[4] to review EPA's process for selecting federal advisory committee members.
- After EPA announced[5] on October 31, 2017 that it would ban scientists from serving on federal advisory committees if they received research funding from EPA, 10 Senators

[1] https://yosemite.epa.gov/sab/sabproduct.nsf/LookupWebProjectsCurrentBOARD/593858E2F8E40BB8852582BA006B57E5/$File/LOCpostSABFY2019.pdf
[2] https://www.epw.senate.gov/public/index.cfm/2017/5/carper-questions-epa-s-abrupt-dismissal-of-scientists-from-agency-board
[3] https://www.shaheen.senate.gov/imo/media/doc/5-18-17%20Letter%20Dismissal%20of%20EPA%20BOSC%20members.pdf
[4] https://www.whitehouse.senate.gov/news/release/senators-call-on-government-watchdog-to-examine-independence-of-epa-advisory-committees
[5] https://www.epa.gov/sites/production/files/2017-10/documents/final_draft_fac_directive-10.31.2017.pdf

asked[6] GAO to expand its probe in order to consider several questions concerning the impact of that policy on EPA's 22 federal advisory committees.

- On January 9, 2018, Senators Carper and Whitehouse sent a letter[7] to EPA asking about the appointment of two scientists—Drs. Louis Anthony (Tony) Cox, Jr., a researcher for the petroleum industry, and S. Stanley Young, a researcher for the pharmaceutical and petroleum industry—to the CASAC and Scientific Advisory Board.[8] According to internal EPA documents, EPA career staff believed that Drs. Cox and Young may have financial conflicts of interest, may risk an appearance of a lack of impartiality, and may lack the scientific expertise necessary to serve on one or more Federal Advisory Committees.
- On February 14, 2018, Senators Carper and Whitehouse sent[9] GAO information about Dr. Cox and Dr. Larry Wolk, who, according to internal EPA documents released by the Senators, was criticized for having "no direct experience in health effects of air pollution," among other things.

There have also been more recent changes to CASAC's membership. On October 10, 2018, EPA announced the appointment of five new members to its CASAC, and the unusual dismissal of three qualified scientists from that committee. Specifically, you removed Judith Chow, Ivan Fernandez, Elizabeth Sheppard from CASAC—all of whom were eligible to serve for another three years—and additionally removed Larry Wolk.

In their place, you appointed Dr. Sabine Lange from the Texas Commission on Environmental Quality and Dr. Steven Packham from the Utah Department of Environmental Quality.[10] Both appointments raise serious concerns related to whether Drs. Lange and Packham should be serving on this Committee. According to documents obtained by the Senate Committee on Environment and Public Works[11], EPA career staff warned that Dr. Lange has "no direct experience serving on national scientific committees" and may have a "possible issue with an appearance of a lack of impartiality" given her publications and presentation on standards for criteria pollutants and her employer's well-established views and positions on various National Ambient Air Quality Standards. Dr. Lange has said that lowering the smog health standard from

---

[6] https://www.whitehouse.senate.gov/news/release/senators-to-gao-examine-pruitts-science-advisory-board-double-standard

[7] https://www.carper.senate.gov/public/index.cfm/2018/1/after-pruitt-bars-scientists-with-epa-grants-from-advisory-committees-carper-and-whitehouse-highlight-concerns-with-new-epa-appointees-conflicts-of-interest

[8] https://yosemite.epa.gov/sab/sabpeople.nsf/webcommittees/CASAC

[9] https://www.epw.senate.gov/public/_cache/files/9/2/92393cc8-538a-4631-ad4c-0a57f8b8e676/3BC9F5D8E67D5EA1329CFE774AAA5228.carper-whitehouse-send-new-internal-epa-documents-to-gao.pdf

[10] https://www.epa.gov/newsreleases/acting-administrator-wheeler-announces-science-advisors-key-clean-air-act-committee

[11] https://www.epw.senate.gov/public/_cache/files/9/2/92393cc8-538a-4631-ad4c-0a57f8b8e676/3BC9F5D8E67D5EA1329CFE774AAA5228.carper-whitehouse-send-new-internal-epa-documents-to-gao.pdf

75 parts per billion (ppb) to 70 ppb "will not measurably impact public health,"[12] has disputed that short-term exposure to smog pollution was linked to respiratory mortality and total mortality,[13] and is considered by some to have "extreme" views regarding the harmfulness of ozone (smog) pollution and the need for protective health standards.[14]

Dr. Packham holds similarly troubling views. In 2014, he presented a poster about air quality and outdoor exercise with the conclusion being that positive effects of exercise outweigh risks of exposure to air pollution—minimizing the impact that air pollution can have on the healthiest and unhealthiest among us. He has also said that individuals can generally deal with increased air pollution, and that while such pollution "can take years off your life" you "don't drop dead." He has also downplayed spikes in formaldehyde presence in Utah.

The appointment of these two scientists (and removal of highly qualified scientists) is particularly concerning in light of EPA's October 10, 2018 announcement[15] that it would disband its Particulate Matter Review Panel and the Ozone Review Panel, which are comprised of outside scientists that have assisted EPA with its statutory obligation under the Clean Air Act to review the adequacy of EPA's standards for six common air pollutants, including particulate matter and ozone. Instead, EPA announced that CASAC – which is now populated with scientists who are generally in favor of lower pollution standards – will serve that function instead.[16] Importantly, Dr. Cox remains the Chair of CASAC, despite a recent investigative report finding that just this year Dr. Cox made claims along the lines "that researchers are overstating the dangers of air pollution," that "his own statistical modeling of health data found no connection between dirty air and respiratory problems or heart attacks," that "there is no proof that cleaning air saves lives," that "there's no link between fine particle pollution and human health," and that "the health benefits from reducing ozone are '"exaggerated."'"[17]

Most recently, EPA also announced the nomination of 174 scientists to EPA's Science Advisory Board, which provides independent scientific and technical advice to the EPA Administrator on EPA's major programs.[18] This list includes several problematic nominees, including: Dr. James Enstrom, who has served as a policy adviser for the Koch-funded Heartland Institute and "has received funding from the tobacco industry to produce research that downplays the risks of secondhand smoke," and has determined that the PM2.5 NAAQS is "scientifically unjustified"[19];

---

[12] https://www.energyindepth.org/wp-content/uploads/2015/06/Shaw-Lange-and-Honeycutt-EM-2015-Ozone-Health-Benefits.pdf

[13] https://www.energyindepth.org/wp-content/uploads/2015/06/Shaw-Lange-and-Honeycutt-EM-2015-Ozone-Health-Benefits.pdf

[14] https://twitter.com/jwalkenrdc/status/1050456077970657287

[15] https://www.epa.gov/newsreleases/acting-administrator-wheeler-announces-science-advisors-key-clean-air-act-committee

[16] https://www.eenews.net/stories/1060102455

[17] https://www.revealnews.org/article/trumps-air-pollution-adviser-clean-air-saves-no-lives/

[18]https://yosemite.epa.gov/sab/sabproduct.nsf/LookupWebProjectsCurrentBOARD/593858E2F8E40BB8852582BA006B57E5/$File/LOCpostSABFY2019.pdf

[19]https://yosemite.epa.gov/sab/sabproduct.nsf/LookupWebProjectsCurrentBOARD/593858E2F8E40BB8852582BA006B57E5/$File/LOCpostSABFY2019.pdf

Dr. William Happer, who helped former EPA Administrator Scott Pruitt develop the red-team concept and heads the CO2 Coalition, which has received funding to argue that "[m]ore carbon dioxide levels will help everyone, including future generations of our families"[20]; and Dr. Richard Belzer, whose recent clients include Exxon Mobil, the American Chemistry Council and Fitzgerald Glider Kits, which is pushing EPA to roll back air pollution protections on heavy trucks.[21]

At least one academic analysis of EPA since the beginning of the Trump administration has concluded that EPA is already demonstrating signs of being influenced by the industries it regulates.[22] By turning to industry-funded scientists and lobbyists to staff the agency and provide it scientific advice, EPA does little to enhance its credibility as an independent government agency acting to protect the environment and public health. And it is hard to see how the agency will be entitled to deference in court when it seeks to defend rules that show signs of being written and endorsed by industry.

So that we can understand EPA's decision-making process with regard to its federal advisory committees, we ask that you provide us with responses to the following questions and requests for information no later than close of business on December 17, 2018:

1. Please provide us with all documents that are related to EPA's decisions to appoint or not to reappoint any members of any of its federal advisory committees, including but not limited to documents relevant to EPA's assessment of advisory committee nominees' potential conflicts of interest or lack of impartiality. Please provide us with updated responses to this request on a quarterly basis.
2. Please provide a detailed description of the internal process EPA uses to select members for its federal advisory committees, including the manner in which the input of EPA's career staff is solicited and utilized. Please provide us with a copy of all documents that memorialize all or part of this internal selection process.
3. Please provide a detailed explanation as to why EPA has determined to eliminate the Particulate Matter Review Panel and the Ozone Review Panel. Please provide us with all documents that are related to any plan to eliminate either panel. Going forward, for any analogous panel EPA determines to eliminate, please provide us with documents related to that decision.

For purposes of this letter, "documents" includes, but is not limited to, comments, notes, emails, legal and other memoranda, white papers, scientific references, letters, telephone logs, meeting minutes and calendars, photographs, slides and presentations sent or received by or within EPA (including documents sent or received by members of EPA's beach-head and transition teams).

---

[20] https://co2coalition.org/frequently-asked-questions/#1465245604826-64586917-ba84
[21] https://www.eenews.net/climatewire/2018/10/18/stories/1060103611
[22] Lindsey Dillon, *et al.*, "The Environmental Protection Agency in the Early Trump Administration: Prelude to Regulatory Capture," *American Journal of Public Health* (April 2018)

Thank you very much for your attention to this important matter. If you have any questions or concerns, please contact or have your staff contact Michal Freedhoff of the Environment and Public Works Committee staff, at 202-224-8832.

Sincerely,

Tom Carper
United States Senate

Sheldon Whitehouse
United States Senate

Edward J. Markey
United States Senate

Margaret Wood Hassan
United States Senate

Elizabeth Warren
United States Senate

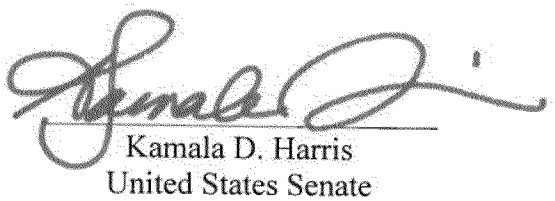
Jeffrey A. Merkley
United States Senate

Kirsten Gillibrand
United States Senate

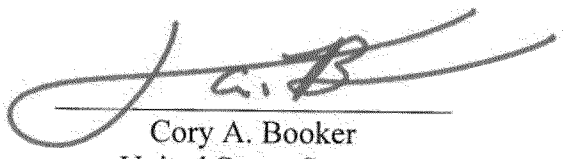
Chris Van Hollen
United States Senate

Ron Wyden
United States Senate

Richard Blumenthal
United States Senate

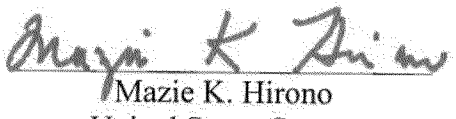


Kamala D. Harris
United States Senate



Cory A. Booker
United States Senate

Jeanne Shaheen
United States Senate



Mazie K. Hirono
United States Senate

Tammy Duckworth
United States Senate

Tina Smith
United States Senator

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

March 5, 2019

EPA-SAB-19-002

The Honorable Andrew R. Wheeler
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Subject: SAB review of *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources* (2014)

Dear Administrator Wheeler:

The EPA Science Advisory Board (SAB) was asked by the EPA Office of Air and Radiation to review and comment on its *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources* (2014) ("2014 Framework"). The 2014 Framework considers the scientific and technical issues associated with accounting for emissions of carbon dioxide (CO_2) from biogenic feedstocks used at stationary sources.

The purpose of the 2014 Framework was to develop a method for calculating the adjustment, or Biogenic Assessment Factor (BAF), for CO_2 emissions associated with the combustion of biogenic feedstocks at stationary facilities by accounting for the biological carbon cycle effects associated with growth, harvest, and processing of these feedstocks. The BAF is an accounting term developed by EPA to adjust stack emissions to reflect a feedstock's *net* carbon emissions after accounting for subsequent sequestration of carbon in regrown biomass or soil, and after considering emissions that might have occurred with an alternate fate had the biomass not been used for fuel.

The SAB notes that EPA's 2014 Framework may be used to develop BAFs for multiple regulations and associated climate objectives (e.g., total emissions versus temperature, etc.); it therefore must be able to accommodate a wide range of potential time and spatial scales and all relevant GHGs. Lack of specificity in the BAF objectives to be addressed under the Framework has made it difficult for the SAB to address many of the charge questions fully.

EPA's 2014 Framework is a revision of its 2011 Framework, which the SAB previously reviewed. The SAB notes that the 2014 Framework incorporated some of the SAB's prior advice and advanced the analytical foundation for making determinations about the net contribution of biogenic feedstocks to

CO_2 in the atmosphere. Specifically, the 2014 Framework has incorporated the SAB's prior advice as follows:

- It adopted an alternative fate approach (i.e., a counterfactual evaluation of what the net biogenic atmospheric contribution might have been if the feedstocks were not used for energy) to the collection and use of waste-derived feedstocks, including avoided methane (CH_4) emissions.
- It included a discussion of the trade-offs inherent in the selection of a temporal scale for considering net emissions.
- It developed representative BAFs by feedstock and region rather than facility-specific BAFs.
- It included a review of existing approaches to addressing leakage, the phenomenon by which efforts to reduce emissions in one place affect market prices that shift emissions to another location.
- It offers an approach to construct an anticipated baseline that allows assessment of the additional CO_2 emissions to, or uptake from, the atmosphere that can be attributed to biogenic feedstocks as a result of changes in biomass feedstock demand.

The 2014 Framework does not, however, provide the regulatory context, specific BAF calculations for that context, or the implementation details the SAB previously requested. In fact, the lack of information in both Frameworks on how the EPA may use potential BAFs made it difficult to fully evaluate these frameworks. The BAF is a *construct* designed to evaluate the importance of the stack emissions of CO_2 at a given time relative to their climate impacts at some point in the future when some of the emitted CO_2 may have been sequestered by regrowth of biogenic feedstocks. As such, the computation of the BAF for a feedstock in a region depends upon the climate impact of concern and the future point in time that is of interest, which is a choice that depends upon the specific regulation or policy that will rely on that BAF. If the objective of interest for the BAF computation is defined by short term processes, then the relevant time-period for the BAF computation needs to include relevant details on short term climate phenomena, which might be less important if the objective of interest is much longer term. In addition to identifying the relevant analytic time frame, knowing the objectives of interest would provide other information necessary to the assessment of the science underpinning the BAFs, such as the scale of demand for biogenic feedstocks, the anticipated time frame for that demand and eligible feedstocks to meet it, relevant spatial scope, and importance of including each type of GHG in the analysis.

While the SAB agreed with many of the recommendations developed by the Biogenic Carbon Emissions Panel in previous drafts of the report, it disagreed with the extended time frame recommended for BAF computation. There was much discussion between the SAB and the Biogenic Carbon Emissions Panel over the significance of the time horizon used to calculate BAFs. The Panel recommended that a general principle for determining the time horizon for BAF calculations should be to select a time horizon that fully accounts for the temporal dynamics for all feedstocks to accommodate the Agency's preference for a regulatory or policy neutral approach. During quality reviews the SAB disagreed with this recommendation noting that for regulatory initiatives that focus on objectives that reflect shorter time horizons, a general model with a long time horizon may not adequately capture the net carbon dioxide emissions relevant to the nearer-term outcomes. The SAB favors selecting the time horizon for calculating the BAF to comport with the objective under consideration, which is generally dependent on the regulation mandating use of that particular BAF. The Panel's previous reports remain available on the SAB webpage.

As we stated in our 2012 report and we reiterate here: this SAB review would have been enhanced if the Agency offered a specific regulatory application that, among other things, provided explicit proposed BAF objectives, which would in turn have defined the applicable boundaries regarding upstream and downstream emissions in the feedstock life cycles. The 2014 Framework lacks specificity and is written in a way that is too generic, with too many possibilities that would require assessment of different underlying science. Rather than offering a lengthy menu of calculation options, the EPA Framework needs to define its scenarios and justify those choices. This would enable the SAB to evaluate the science underpinning those decisions and justifications.

Despite this significant limitation, the SAB offers overarching suggestions for moving forward with a framework for assessing the BAFs of biogenic feedstocks. In addition, we offer specific responses to EPA's charge questions when possible and the SAB offers general guidance regarding the calculation of BAFs. EPA's equations were based on emissions (fluxes) with some adjustment terms to account for carbon mass escaping the system between the point of assessment and the point of emissions. In the enclosed report, the SAB recommends an alternative formulation based on changes in terrestrial (non-atmospheric) carbon stocks (or pools) such as the live stocks in biomass, dead stocks, soil stocks, etc., that explicitly incorporates the principle of conservation of mass. While the carbon-stock-based accounting system results in a formula for BAF similar to that of EPA's emissions-based approach, it offers multiple advantages: the component stocks are regularly inventoried and modeled by the scientific community; the different stocks can be aggregated and rearranged as needed or further subdivided; and it is appropriately constrained by conservation of mass and therefore the validity of the results can be assessed using mass balance calculations. Although this alternative formulation provides these benefits, other important modeling issues remain. These include selecting appropriate temporal or spatial boundaries, considering variability among classes of feedstocks, accounting for non-CO_2 greenhouse gases such as nitrous oxide and methane, and quantifying stocks and fluxes that are difficult to measure or estimate.

As an additional caveat, the SAB is aware that the EPA report and this review are focused only on accounting for CO_2 related to the use of biomass for electricity generation. Neither EPA nor the SAB evaluated other concerns like forest conservation, biodiversity, and ecosystem services. We offer this caution about the model boundaries as defined by EPA's method and identified in the SAB review. In addition, we recognize that biodiversity and ecosystem health are valid concerns worthy of a whole different analysis and policy response.

Finally, EPA did not ask the SAB for feedback on its modeling approach. We think this was an oversight, given that modeling is critical to the development of the BAF and different modeling approaches can yield different results. The 2014 Framework employed an integrated model that captures economic and biophysical dynamics and interactions for some of its alternative BAF calculations; however, EPA did not offer explicit justification for its modeling choices derived from articulated criteria. In addition, the sensitivity of BAF responses to some underlying features of the model was not examined by the EPA or the SAB. Thus, we conclude EPA should identify and evaluate its criteria for choosing a model or models and examine the sensitivity of BAF estimates to key modeling features.

The SAB appreciates the opportunity to provide advice on the 2014 Framework and looks forward to your response.

Sincerely,

/S/

Dr. Michael Honeycutt, Chair
Science Advisory Board

Enclosure

NOTICE

This report has been written as part of the activities of the EPA Science Advisory Board (SAB), a public advisory group providing extramural scientific information and advice to the Administrator and other officials of the Environmental Protection Agency. The SAB is structured to provide balanced, expert assessment of scientific matters related to problems facing the Agency. This report has not been reviewed for approval by the Agency and, hence, the contents of this report do not represent the views and policies of the Environmental Protection Agency, nor of other agencies in the Executive Branch of the Federal government, nor does mention of trade names of commercial products constitute a recommendation for use. Reports of the SAB are posted on the EPA Web site at http://www.epa.gov/sab.

U.S. Environmental Protection Agency
Science Advisory Board

CHAIR
Dr. Michael Honeycutt, Division Director, Toxicology Division, Texas Commission on Environmental Quality, Austin, TX

MEMBERS
Dr. Rodney Andrews, Director, Center for Applied Energy Research, UK Research, University of Kentucky, Lexington, KY

Dr. Deborah Hall Bennett, Professor and Interim Chief, Environmental and Occupational Health Division, Department of Public Health Sciences, School of Medicine, University of California, Davis, Davis, CA

Dr. Frederick Bernthal, President Emeritus and Senior Advisor to the Board of Trustees, Universities Research Association, Washington, DC

Dr. Bob Blanz, Chief Technical Officer, Arkansas Department of Environmental Quality, North Little Rock, AR

Dr. Todd Brewer, Senior Manager, Partnership Programs, American Water Works Association, Denver, CO

Dr. Joel G. Burken, Curator's Professor and Chair, Civil, Architectural, and Environmental Engineering, College of Engineering and Computing, Missouri University of Science and Technology, Rolla, MO

Dr. Janice E. Chambers, William L. Giles Distinguished Professor and Director, Center for Environmental Health and Sciences, College of Veterinary Medicine, Mississippi State University, Starkville, MS

Dr. Samuel Cohen, Professor, Pathology and Microbiology, University of Nebraska Medical Center, Omaha, NE

Dr. Louis Anthony (Tony) Cox, Jr., President, Cox Associates, Denver, CO
Also Member: CASAC

Dr. Alison C. Cullen, Professor, Daniel J. Evans School of Public Policy and Governance, University of Washington, Seattle, WA

Dr. Otto C. Doering III, Professor, Department of Agricultural Economics, Purdue University, W. Lafayette, IN

Dr. Joel J. Ducoste, Professor, Department of Civil, Construction, and Environmental Engineering, College of Engineering, North Carolina State University, Raleigh, NC

Dr. Susan P. Felter, Research Fellow, Global Product Stewardship, Procter & Gamble, Mason, OH

Dr. R. William Field, Professor, Department of Occupational and Environmental Health and Department of Epidemiology, College of Public Health, University of Iowa, Iowa City, IA

Dr. H. Christopher Frey, Glenn E. Futrell Distinguished University Professor, Department of Civil, Construction and Environmental Engineering, College of Engineering, North Carolina State University, Raleigh, NC

Dr. Joseph A. Gardella, SUNY Distinguished Professor and John and Frances Larkin Professor of Chemistry, Department of Chemistry, College of Arts and Sciences, University at Buffalo, Buffalo, NY

Dr. John D. Graham, Dean, School of Public and Environmental Affairs, Indiana University, Bloomington, IN

Dr. Steven P. Hamburg, Chief Scientist, Environmental Defense Fund, Boston, MA

Dr. Cynthia M. Harris, Director and Professor, Institute of Public Health, Florida A&M University, Tallahassee, FL

Dr. Merlin R. Lindstrom, Vice President Technology, Phillips 66 Research Center, Bartlesville, OK

Dr. Robert E. Mace, The Meadows Center for Water and the Environment, Texas State University, San Marcos, TX

Dr. Clyde F. Martin, Horn Professor of Mathematics, Emeritus, Department of Mathematics and Statistics, Texas Tech University, Crofton, MD

Dr. Sue Marty, Senior Toxicology Leader, Toxicology & Environmental Research, The Dow Chemical Company, Midland, MI

Dr. Kristina D. Mena, Associate Professor, Epidemiology, Human Genetics and Environmental Sciences, School of Public Health, University of Texas Health Science Center at Houston, El Paso, TX

Dr. Surabi Menon, Director of Research, ClimateWorks Foundation, San Francisco, CA

Mr. Robert W. Merritt, Independent Consultant, Houston, TX

Dr. Larry Monroe, Independent Consultant, Braselton, GA

Dr. Thomas F. Parkerton, Senior Environmental Associate, Toxicology & Environmental Science Division, ExxonMobil Biomedical Science, Houston, TX

Dr. Robert Phalen, Professor, Air Pollution Health Effects Laboratory, Medicine, Department of Medicine, University of California-Irvine, Irvine, CA

Mr. Richard L. Poirot, Independent Consultant, Burlington, VT

Dr. Kenneth M. Portier, Independent Consultant, Athens, GA

Dr. Robert Puls, Owner/Principal, Robert Puls Environmental Consulting, Hilton Head Island, SC

Dr. Kenneth Ramos, Associate Vice-President of Precision Health Sciences and Professor of Medicine, Arizona Health Sciences Center, University of Arizona, Tucson, AZ

Dr. Tara L. Sabo-Attwood, Associate Professor and Chair, Department of Environmental and Global Health, College of Public Health and Health Professionals, University of Florida, Gainesville, FL

Dr. William Schlesinger, President Emeritus, Cary Institute of Ecosystem Studies, Millbrook, NY

Dr. Anne Smith, Managing Director, NERA Economic Consulting, Washington, DC

Dr. Richard Smith, Professor, Department of Statistics and Operations Research, University of North Carolina, Chapel Hill, NC

Dr. Jay Turner, Associate Professor and Vice Dean for Education, Department of Energy, Environmental and Chemical Engineering, School of Engineering & Applied Science, Washington University, St. Louis, MO

Dr. Jeanne M. VanBriesen, Duquesne Light Company Professor of Civil and Environmental Engineering, and Director, Center for Water Quality in Urban Environmental Systems (Water-QUEST), Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA

Dr. Donald vanderVaart, Independent Consultant, Raleigh, NC

Dr. Kimberly White, Senior Director, Chemical Products and Technology Division, American Chemistry Council, Washington, DC

Dr. Peter J. Wilcoxen, Laura J. and L. Douglas Meredith Professor for Teaching Excellence, Director, Center for Environmental Policy and Administration, The Maxwell School, Syracuse University, Syracuse, NY

Dr. S. Stanley Young, Chief Executive Officer, CGStat, Raleigh, NC

SCIENCE ADVISORY BOARD STAFF
Mr. Thomas Carpenter, Designated Federal Officer, U.S. Environmental Protection Agency, Science Advisory Board, Washington, DC

TABLE OF CONTENTS

Acronyms and Abbreviations

BACT	Best Available Control Technology
BAF	Biogenic Assessment Factor
BAU	Business as Usual
CH_4	Methane
CO_2	Carbon Dioxide
EPA	Environmental Protection Agency
GHG	Greenhouse Gas
PSD	Prevention of Significant Deterioration
N_2O	Nitrous Oxide
SAB	Science Advisory Board
USDA	U.S. Department of Agriculture

1. EXECUTIVE SUMMARY

The EPA requested the SAB review a revised framework for accounting for biogenic carbon emissions, which the agency defines as "CO_2 emissions related to the natural carbon cycle, as well as those resulting from the combustion, harvest, digestion, fermentation, decomposition, or processing of biologically based materials."[1] The goal of the 2014 Framework was to evaluate biogenic CO_2 emissions from stationary sources that use biomass feedstocks, given the ability of green plants to remove CO_2 from the atmosphere through photosynthesis. The 2014 Framework and its 2011 predecessor introduced the concept of a Biogenic Assessment Factor (BAF), which is the proposed adjustment for carbon emissions associated with the combustion of biomass feedstocks. The BAF is an accounting term developed in the Framework to denote the offset to stack emissions (using a mathematical adjustment) to reflect net carbon emissions after taking into account the sequestration of carbon in regrown biomass or soil, as well as emissions that might have occurred with an alternative fate had the biomass not been used for fuel.

Importance of Defining the Objective to Be Addressed by a BAF

The questions before the EPA in 2011 and presented for the SAB's review, were whether and how to consider greenhouse gas (GHG) emissions and decisions about best available control technology (BACT) for CO_2 emissions from biomass feedstocks used for electricity generation at stationary facilities. EPA proposed to address this issue by defining a term, Biogenic Assessment Factor, intended to be used to assess effects *relative* to the desired objectives. The 2014 Framework, however, removed the regulatory context, and did not include specific BAF calculations for any regulatory context, or the implementation details the SAB previously requested.

Because the EPA's 2014 Framework report does not identify the specific metric of climate impact (or "objective") with resulting regulations that a BAF estimate should reflect, BAFs that may be developed under the Framework could entail a wide range of objectives, e.g., temporal and spatial domains, total emissions, temperature, etc. While ideally it would be desirable to identify a universal methodology that could be applied to any of a wide range of potential objectives, doing so poses exceptional technical challenges and the concept was not endorsed by the SAB. Thus, the lack of specificity in the 2014 Framework document regarding the objectives that BAFs are expected to address made it very difficult for the SAB to assess whether the types of models, data, and baselines suggested by the Framework are appropriate, and has limited the ability of the SAB to fully address some of the charge questions. We thus preface the SAB's comments with an observation on the consequences of having made this revised 2014 Framework so unspecific with respect to its intended and potential applications. The SAB concluded that evaluation of EPA's plan for a science-based regulatory framework in the absence of defined regulatory objectives is not useful. Rather than assume a specific objective, or evaluate the charge questions across numerous putative objectives of interest, the SAB has focused on providing input on considerations that affect the usefulness and scientific integrity of EPA's approach in general.

[1] https://19january2017snapshot.epa.gov/climatechange/carbon-dioxide-emissions-associated-bioenergy-and-other-biogenic-sources_.html

Region- and Feedstock-Specific Biogenic Assessment Factors, baselines and modeling

As recommended previously by the SAB, BAFs should be feedstock-specific and region-specific and not facility-specific. Facility-specific BAFs are conceptually and practically challenging to estimate due to the absence of well-defined spatial boundaries for feedstock supply to each facility and the role of market-induced effects on land use, on biomass production and market demand for fiber, and on carbon stocks across space. To obtain a region-specific BAF for feedstocks, it is necessary to address region-specific, feedstock-specific demand for biomass and to assess the impact of this increased demand for biomass on net carbon stocks. Changes in demand for biomass feedstocks should be assessed based on historical data on forest carbon stocks, resource use, and observed information on current and planned expansions to facilities using biomass feedstocks. *There is no single answer to what these BAFs should be, as not all biogenic emissions are carbon neutral nor net additional to the atmosphere, and assuming so is inconsistent with the underlying science.*

Projections of the interactions that must be assessed to compute a BAF can be obtained from diverse model types, from simple empirically and statistically-based models, to complex integrated assessment models that combine biophysical and economic factors. For all model types, sensitivity and uncertainty analyses are needed to adequately interpret the results and understand the dependency of the BAF on the choices and assumptions used as part of its computation.

To compare changes in any system over time there must be a reference scenario (without increased demand for biomass feedstocks) against which to assess the net impacts on the variable of interest. In 2012, the SAB recommended a future anticipated baseline approach to capture the *additional* CO_2 emissions to, or uptake from, the atmosphere created by any increased use of biomass feedstocks for electricity generation. The EPA acknowledged this limitation of its earlier approach and included a future anticipated baseline analysis *along with* a reference point approach in its 2014 Framework. Both the future anticipated baseline and the reference point baseline (with regular updates) are challenging to apply due to data and modeling limitations.

Regardless of the baseline structure chosen (adjusted reference or future anticipated), validation and evaluation of the model used to compute the BAFs will be critical. Model validation is essential to assessing any model's ability to replicate observed phenomenon over time, ensuring that simulations based on the model are sufficiently accurate. Similarly, understanding model sensitivity to input parameters and assumptions is important with respect to assessing model applicability over time. The model selected for estimating BAFs should be reviewed and updated at regular intervals, capturing observed changes in economic and land use conditions that may be due to increased biomass demand or other related conditions, as well as the latest scientific information on biophysical and biogeochemical properties of feedstocks. The appropriate review interval should be selected based on the timeframe of the regulatory objective(s) as well as the timeframe associated with updates to the underlying data.

Charge Question 1

Temporal and Spatial Scales

A sustained increased demand for biomass feedstocks by stationary facilities in a region is likely to trigger changes in carbon stocks through one or more pathways that could generate a new (steady-state) equilibrium stock of carbon that may be higher or lower than the current stock of carbon on the land. The demand for biomass feedstocks for use in stationary facilities can affect carbon stocks by increasing

harvesting intensity for standing biomass, diverting biomass feedstocks from other non-energy products and landfills, converting land from other uses to plant new biomass feedstocks for the future, and utilizing biomass residues that might otherwise decay. Each of these responses may differ over time, and thus, the overall effect of all these responses on demand for biomass feedstocks may differ over time. Therefore, the time period selected for estimating the carbon stock or net carbon emissions impacts of an increased demand for biomass feedstocks can strongly affect those estimates. The selection of the time period for assessment is not a purely scientific question and may be primarily driven by the objectives associated with the use of BAFs to be estimated using this Framework. For example, consider an objective to limit peak planetary warming versus an objective of controlling emissions of greenhouse gases in 2050: the same feedstock in the same region could have widely varying impacts on terrestrial carbon stocks because the timeframe defining the endpoint of the relevant analysis would differ. Since BAFs will be computed to serve specific regulatory objectives, there are no scientific criteria by which to pick a single 'right' timeframe for their determination independent of their regulatory context (Ocko et al 2017).

Stationary facilities require a continuous supply of feedstock, thus a landscape approach for accounting of impacts on carbon stocks is more appropriate than a stand-level approach for this application. A landscape approach expands the boundaries of analysis to include all effects and recognizes that there is uptake as well as loss of carbon associated with the production of feedstocks concurrently occurring across the landscape. It is the overall balance of losses and gains that determines carbon stock effects. Moreover, economic considerations will determine the size of the landscape providing feedstocks over time and the potential for land-use changes that can positively or negatively impact carbon stocks.

Stock-Based Accounting Preferred to Emissions-Based Accounting

Carbon accounting associated with determining BAFs should be based on changes in carbon stocks on the land rather than changes in carbon emissions (as used in EPA's 2011 and 2014 Frameworks). A key feature of using carbon stocks is that all terms can be readily aggregated or disaggregated, subject to validation via mass balance, and an existing comprehensive system of empirical measurements is already in place for the US. The stock-based approach comports with the current conventions in carbon accounting, which essentially use input-output tracking of carbon throughout a system with well-defined boundaries. These stocks can be aggregated and rearranged as needed, and they are appropriately constrained by conservation of mass and therefore can be checked and their precision determined using mass balance calculations, in addition to other checks.

Two Cumulative Biogenic Assessment Factor Approaches

The SAB recommends a cumulative carbon accounting metric; however, there are alternative ways to calculate cumulative BAFs. EPA's cumulative BAF (called BAF_T in the 2014 Framework) is one option, reflecting the difference in carbon stocks between the beginning and end of the time horizon, T. One can also calculate a cumulative BAF that is based on the accumulation of annual differences in carbon stocks on the land over the same time horizon, here called $BAF_{\sum T}$. Until the implications of the differences are better understood, we support EPA's cumulative BAF approach, i.e., the difference in carbon stocks between the beginning and the end of the selected time horizon.

Charge Question 2

Scales of Biomass Use and Modeling Approach

Projections for aggregate demand for all biomass changes should be bounded by historical data on resource use, observed information on current and planned expansions to facilities using biogenic feedstocks, and reasonable projections of cost-effective deployment of biomass feedstocks for meeting the energy/feedstock needs of stationary facilities.

In addition, regular retrospective evaluations of observed levels of demand and the mix of feedstocks would enable revisions to EPA's estimates of feedstock demand. Retrospective evaluations of BAF performance will be important for understanding how effective the modeling has been in predicting what occurred. Thus, projections about biomass feedstock demand should be revised based on actual observations, and these updated demands should be used to inform modeling that generates BAFs.

Recommendations

As we have observed above, a sound biogenic carbon accounting approach for estimating BAFs will depend on the specific regulatory objectives for those BAFs, which are yet to be defined. Recognizing this limiting factor in the SAB's ability to review the 2014 Framework, we make the following recommendations.

1. EPA should identify and evaluate its criteria for choosing a model and modeling features that affect BAF results. EPA should explore the sensitivity of BAFs to different modeling approaches, assumptions, transaction costs, and uncertainties in model input parameters.

2. Stationary facilities require a continuous supply of biomass feedstocks, thus a landscape approach is appropriate and likely most reliable for accounting for the impacts of feedstock demand on carbon stocks.

3. The estimate of the direction and magnitude of the impact of using biogenic feedstocks in stationary facilities on terrestrial carbon stocks depends on the time horizon considered. There is no optimal time horizon for evaluating these impacts, and should be determined by the regulatory context mandating use of BAFs.

4. Changes in carbon stocks (e.g., live and dead biomass, soil, products, material lost in transport and waste), should be used to account for biogenic carbon, rather than an emissions (flux-based) approach.

5. The SAB suggests exploration of two cumulative BAF metrics. Until the implications of the different metrics are clear, the SAB recommends using the metric proposed by EPA, i.e., net changes in stock over a specified time.

2. INTRODUCTION

2.1. Background

EPA's Science Advisory Board (SAB) was asked by the EPA Office of Air and Radiation to review and comment on its *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources* (U.S. EPA 2014).

The purpose of the 2014 Framework was to develop a method for calculating the adjustment, or Biogenic Assessment Factor (BAF), for CO_2 emissions associated with the use of biogenic feedstocks in stationary facilities, taking into account the biological carbon cycle associated with the growth, harvest, and processing of plant biomass. This mathematical adjustment to stack emissions is needed because of the unique ability of biological systems to sequester CO_2 from the atmosphere through photosynthesis in living biomass, to sequester carbon in dead biomass and soil, and to release CO_2 through respiration and biologically-mediated decay of organic matter. These attributes of ecosystems mean that there can be wide variation in the net effect of using biomass feedstocks in stationary facilities on emissions of carbon dioxide to the atmosphere and thus it is scientifically indefensible to assume all bioenergy has no net carbon dioxide emissions to the atmosphere, or the reverse, that all emissions represent a net addition to the atmosphere. The BAF is an accounting term developed in the Framework to estimate the net CO_2 emissions to the atmosphere over a specified period of time associated with burning biomass feedstocks to produce energy. These net emissions reflect the changes in carbon stocks of above and below ground biomass (live and dead), soils, and wastes. The 2014 Framework is a revision of the 2011 Framework (U.S. EPA 2011), which the SAB previously reviewed (U.S. EPA SAB 2012).

The EPA's charge to the SAB (Appendix A) requests advice and recommendations on its revised 2014 Framework, which was developed with consideration of the SAB's 2012 recommendations as well as the latest information and input from the scientific community and other stakeholders. The EPA asked the SAB to review and offer recommendations on specific technical elements of the 2014 Framework for assessing the extent to which the production, processing, and use of biogenic feedstocks at stationary facilities results in net emissions of CO_2 to the atmosphere so that it could be quantified through calculation of a BAF.

To conduct the present review, the SAB Staff Office reconstituted the Biogenic Carbon Emissions Panel (Appendix B), which had reviewed the 2011 Framework. That panel met multiple times between March 2015 and August 2017. The Panel presented a draft report (February 2016) to the SAB for quality review. The SAB quality review was conducted in March 2016; this quality review resulted in requested revisions from the Panel. The revised draft report (June 2017) was reviewed by the Board in 2017. The 2017 revision of the report was not approved by the SAB based on the deliberations of the quality review. The present report is a product of SAB's direct efforts and utilizes portions of the Panel's report. Previous drafts of the Panel's report are retained on the SAB website and available here.

The 2014 Framework does not provide the regulatory context, specific BAF calculations for that context, or the implementation details the SAB requested in its review of the 2011 Framework. That is, EPA's Framework report does not identify the specific metric of climate impact (or "objective") that a BAF estimate should reflect, and further notes that BAFs that may be developed under the Framework could entail a wide range of objectives, depending on the regulation or policy-specific approach that would require use of a BAF. (For example, some regulations may impose objectives related to different

time horizons than others; similarly, under some regulations the BAF may need to address a temperature impact objective, while other regulations may impose a net CO_2 emissions objective.) Lack of specificity in the Framework document regarding the objectives to be estimated makes it very difficult for the SAB to assess whether the suggested types of models, data, and baselines are appropriate. While it would, in this situation, be desirable to identify a universal modeling methodology that could be applied to any of a wide range of potential objectives, this poses significant new analytical and data challenges on the Framework, and the SAB is not endorsing such an approach. Thus, we note as a preface to this set of SAB comments that a consequence of having made the 2014 Framework so general in its potential applications it has limited SAB's ability to fully address the charge questions presented to it for this review.

3. OVERARCHING COMMENTS

This section addresses issues that lie outside the scope of EPA's charge questions, but which the SAB considered critical to place the responses to the charge questions in context. The charge questions are narrowly focused on specific technical aspects in the structure of the 2014 Framework. However, the SAB had important general advice regarding the Framework. This section outlines that advice.

3.1. Defining Objectives through the Regulatory Context

For its review of the 2011 Framework, the SAB requested and was given a regulatory context for use of BAFs that would result from the biogenic CO_2 accounting framework. The SAB was told that the 2011 Framework was intended to guide the determination of CO_2 emissions from regulated stationary sources under the Clean Air Act, specifically those facilities receiving a prevention of significant deterioration (PSD) air permit and that were required to conduct a best available control technology (BACT) analysis for CO_2 emissions. The question before the agency, and hence the SAB, was whether and how to consider biogenic greenhouse gas (GHG) emissions in reaching thresholds for permitting and decisions about BACT for CO_2 emissions from the use of bioenergy in stationary facilities.

The agency has removed this regulatory context from its 2014 Framework, and the EPA's charge questions seek guidance on issues related to the choice of temporal, spatial and production scale for determining BAFs in a regulatory-neutral context. In the absence of a specific regulatory context, which would define the objectives that a BAF must estimate, the SAB limited its review to providing general comments about how to consider the questions posed. More specific answers to the questions posed will vary with the objective (as defined by the regulatory context), most notably the appropriate time period over which to determine the net biogenic emissions, and to a lesser degree, the appropriate geographical scale for consideration.

A regulatory context with explicit objectives would clarify if the procedures for determining the BAF will need to account for the emissions of all greenhouse gases that alter the climate. If this is the case, then it will be important that the analytic methods described by the Framework account for the effect of biogenic feedstocks on non-CO_2 gases such as N_2O and CH_4 and to examine how the emission or uptake of these gases differ across space, time, and feedstocks. Given the large difference in the mean residence time of these gases in the atmosphere, their relative importance can vary widely over different time horizons. If climate impact over 20 or 40 years is the objective, then methane and carbon particulate emissions could be very important, while if the objective's period of concern is hundreds of years, their importance will drop significantly (Shoemaker, et. al., 2013). Non-CO_2 gases are particularly important for feedstocks grown with nitrogen fertilizer and for waste materials from landfills.

As an additional caveat, the SAB is aware that the EPA report and this review are focused only on accounting for carbon dioxide related to the use of biomass in stationary facilities for energy generation. Neither EPA nor the SAB evaluated other concerns like forest conservation, biodiversity, and ecosystem services. If, for example, biomass pellets were sourced from old growth forests, this would pose unique risks that would not be reflected in a BAF calculated for net effects on carbon dioxide. We offer this caution about the model boundaries as defined by EPA's method and identified in the SAB review. In addition, we recognize that biodiversity and ecosystem health are valid concerns worthy of a different analysis and regulatory response.

Recommendation

- BAFs will vary depending on their specific objective, which will depend upon the regulatory context, particularly in selection of the time horizon and geographic scope. Thus, future efforts to define specific biogenic accounting factors should be conducted in a regulatory-specific context, with the objectives and relevant time frame specified.
- It is inappropriate to use default assumptions, including assuming there are no net emissions or that all emissions are additive.

3.2. Baseline Approach

To compare change in any system over time, there must be a baseline scenario against which to assess changes, in this case, changes due to demand for biogenic feedstocks; a baseline allows different scenarios to be compared. In the 2011 Framework, the EPA assesses the estimated net change in land-based biogenic CO_2 fluxes and/or carbon stocks between two points in time, with the first time point called the reference point. In the 2012 SAB report, we noted temporal problems with the reference point baseline approach. The EPA has acknowledged this in its 2014 Framework and included a future anticipated baseline analysis alternative along with a reference point baseline approach. The 2014 framework notes that the choice of baseline (reference point or anticipated) depends on the question to be answered and the specific context in which the framework is applied.

The SAB's 2012 advice on the anticipated baseline approach explored the use of complex modeling in order to try to capture interactions among the market, land use, investment decisions, and emissions and ecosystem feedbacks, and to construct a counter-factual scenario that does not include increased bioenergy use. In the case of long rotation feedstocks, biomass feedstock demand can affect carbon stocks in many ways including the age of trees harvested, the diversion of forest biomass from traditional forest product markets to bioenergy, and the rates of reforestation and deforestation. Estimating the net effect of these changes on carbon stocks requires a model that integrates market demand and supply conditions with biophysical conditions that determine growth of forest biomass, losses via decomposition, carbon sequestration and fluxes due to harvests and land use change and incorporates the spatial variability in these effects across the U.S. The complexity of such a modeling approach can make it difficult to parameterize and validate, and thus poses a significant challenge for use in any context. Extra effort will be needed to provide the public with thorough sensitivity analyses of parameters and model assumptions, and explicit recognition of model uncertainties in resulting BAF estimates.

Also, consistent with the SAB's 2012 recommendations, the EPA has now moved toward a "representative factor" approach that would include an assessment of the biogenic landscape attributes (type of feedstock, region where produced). The EPA initially considered calculating a BAF for an individual stationary facility; however, the data needs for a facility-specific approach are daunting if they are to be accurate (e.g., case-specific measurements and calculations of carbon stocks and chain-of-custody carbon accounting, integration of land use changes on a broader landscape level). EPA's use of a representative factor approach is an advance in its accounting methodology, although overly-broad feedstock categories may not reflect important extant or likely future variation in feedstock production or processing (e.g., roundwood in the Southeast, logging residues in the Pacific Northwest, and corn

stover in the Corn Belt). The overall approach is a positive development, but caution is required to ensure such inclusiveness does not produce unintentionally negative outcomes, e.g. feedstocks with large net emissions to the atmosphere lumped together with those with more limited net emissions. The EPA should evaluate the "representativeness" of the factors and refine the approach over time with additional data.

As stated in the SAB's 2012 report, there are tradeoffs between ease of implementation (transaction costs), generalizability (getting it right at every location), accuracy (getting the overall stock change correct), and regulatory effectiveness (ensuring that the regulatory objectives are being met). The SAB continues to recognize the difficulty of undertaking the recommended anticipated future baseline approach, and practicality should be an important consideration in the agency's decision making. While the reference point baseline approach has significant limitations as noted in the SAB's 2012 report, these might be mitigated if regular updating with empirical data to capture regional carbon stock changes (increases or decreases) were employed. All methods considered should be subject to an evaluation of the costs of implementation and compliance and weighed against any increase in accuracy that they might yield. Ultimately it is critical that there is a balance among these considerations.

Recommendation

- The EPA should identify and evaluate its criteria for choosing a model and its underlying assumptions with regards to how these criteria and assumptions affect the robustness and reliability of calculated representative BAFs. In addition, the EPA should periodically update and validate the selected model to incorporate the latest scientific knowledge while ensuring that the model outputs are consistent with empirical observations (e.g. shifts in measured carbon stocks as determined the Forest Inventory Analysis program). Any model chosen should be subject to sensitivity analysis to evaluate its efficacy under different conditions and to identify data needs and prioritize future research.

3.3. Alternative Fate Approach for Waste-Derived Feedstocks

In 2012, the SAB recommended that the EPA consider alternative fates (i.e., if not used as fuel for electricity generation or process heat) of waste-derived feedstocks diverted from the waste stream, e.g., whether these feedstocks might decompose over a long period of time, whether they would be deposited in anaerobic landfills, whether they would be diverted from recycling and reuse, etc. In the 2014 Framework, the EPA has conducted extensive alternative fate calculations; however, the agency drew a narrow boundary around point source emissions and neglected other significant considerations that affect the GHG footprint of alternative municipal solid waste management scenarios. Specifically, the EPA neglected to quantify a potential alternative fate of municipal solid waste through landfill-derived methane combustion. Under the Clean Air Act New Source Performance Standards, the EPA requires landfills above a certain size to, at a minimum, collect and control landfill gas (e.g., through flaring or use). As such, a baseline of direct venting is misleading, although almost all these facilities are likely to produce large emissions of methane, even when in compliance with current regulations (Lamb et al 2016: www.epa.gov/lmop/basic-information-about-landfill-gas). The relative rankings of BAFs across waste treatment options assessed in the 2014 Framework might change considerably if a more complete accounting were undertaken (e.g., energy recovery from landfill-derived methane and combustion of waste, and carbon storage associated with landfills).

3.4. Temporal and Spatial Considerations in Biogenic Assessment Factor Calculations

The goal of the EPA Framework reviewed is to account for effects of biomass feedstocks used for energy generation at stationary facilities on terrestrial carbon stocks. BAFs are a carbon accounting method based on expected future changes in carbon stocks (measured in tons of carbon). They are designed to assess the net contribution of CO_2 from a stationary facility that uses biomass feedstocks, due to shifts of terrestrial carbon to and from the atmosphere over a specified period of time. The time scale selected will vary depending on regulatory-defined objectives (e.g., reduction of GHG emissions in 2050 or 2100, or limiting global temperature change resulting from greenhouse gas emissions). Over the selected time period, all greenhouse gas impacts (not just CO_2) – both positive and negative – should be accounted for (as completely as is feasible).

Stationary facilities require a continuous supply of feedstock, thus a landscape approach for accounting of impacts on carbon stocks is more appropriate than a stand-level approach for the application EPA defines (stationary facility for energy production). A landscape approach expands the boundaries of analysis to include all effects and recognizes that there is uptake as well as loss of carbon associated with the production of feedstocks concurrently occurring across the landscape. It is the overall balance of losses and gains that determines carbon stock effects. Moreover, economic considerations will determine the size of the landscape providing feedstocks over time and the potential for land-use changes that can positively or negatively impact carbon stocks. As noted by Cintas et al. (2016), "assessment at the landscape scale integrates the effects of all changes in the forest management and harvesting regime that take place in response to – experienced or anticipated – bioenergy demand. Taken together, these changes may have a positive, negative or neutral influence on the development of forest carbon balances." Landscape level accounting of effects of forest-based feedstocks on carbon stocks can result in a net gain or loss of carbon stocks in the near to medium term; a carbon debt could be followed by a carbon dividend or the other way around.

BAFs are a carbon accounting tool for assessing CO_2 emissions from facilities that consume biomass feedstocks for production of energy and are not life cycle assessments of net greenhouse gas emissions or their climate change effects. The distinction is that not all indirect systemic effects are considered in the BAF, nor are all GHG effects included. We also underscore our caution that the net accumulation of forest and soil carbon over time should not be assumed to occur automatically or to be permanent; rather, growth and accumulation should be monitored and evaluated for changes resulting from management, regulatory efforts, market forces, or natural causes. If such monitoring demonstrates changes that are not included in the model used to develop the BAF, the BAF should be updated to align with the empirical data.

Recommendation

- Stationary facilities require a continuous supply of feedstock, thus a landscape approach is appropriate and likely most reliable for accounting for the impacts of feedstock demand on carbon stocks.

4. RESPONSES TO EPA'S CHARGE QUESTIONS

4.1. Temporal/Spatial Scale for Biogenic Accounting

Charge Question 1: What criteria could be used when considering different temporal scales and the tradeoffs in choosing between them in the context of assessing the net atmospheric contribution of biogenic CO_2 emissions from the production, processing, and use of biogenic material at stationary sources using a future anticipated baseline?

There are several key factors that impact the dynamic nature of the BAF for a specific feedstock and region. The first is that the increased demand for biomass feedstocks in a region could potentially be met by a variety of sources obtained from the agricultural and forestry sectors, including annual and perennial agricultural crops, short rotation woody biomass and pulpwood, and crop and forest residues. Any increase in demand might involve using a larger proportion of an existing resource or diversion from non-energy products and landfills, converting land from other uses to growing biomass feedstocks, changing use of existing feedstocks, utilization of residues that would otherwise decay over some period of time. The effect of increased demand for biomass feedstocks on carbon stocks will depend on the mix of these feedstocks demanded and the scale of demand for these feedstocks.

Second, different biomass sources have different effects on carbon stocks over different timeframes. The plant systems, e.g., forests, agronomic systems, producing feedstocks differ in their rate of growth/regrowth, yield, potential to sequester carbon in biomass and soils, decay rates after harvest, and the type of land-use change that accompanies their production. These effects continue after the feedstock has been consumed by a stationary facility. We therefore recommend computing a cumulative BAF over the relevant time horizon. This cumulative BAF would be based on the difference in carbon stocks between a scenario without change (either computed using a reference point or anticipated baseline) and the increased biomass feedstock demand scenario and would vary with the time horizon selected by the objective in the relevant regulations.

Key principles for calculating changes in the net carbon stocks should include: (1) the positive and negative impacts of demand for biomass over time, (2) a system-wide (landscape and economy) approach to account for direct and indirect effects, and (3) consistency across each region. Selecting different time horizons for different feedstocks being used to meet the same regulatory objective would be inappropriate as it would yield inconsistent effects.

Determining the scale of appropriate regions for calculating BAFs will require balancing similarity in the biophysical characteristics, similar growing conditions (growing season length, vegetation type) and economic factors, biomass demand, with ensuring that the edge to volume ratios of the regions are small enough to ensure minimizing incentives to manipulate the movement of biomass feedstocks among regions due to differing BAFs.

To fully account for all positive and negative terrestrial effects over time, we recommend using the "emissions horizon" that is determined to be relevant by the specific regulatory objective. As defined by the EPA, this "emissions horizon is the period of time during which the carbon fluxes resulting from actions taking place today actually occur …" (U.S. EPA 2014). If the objective associated with a given BAF is to have an effect on greenhouse gas emissions by a certain date, then that date is the appropriate time horizon under which that BAF should be calculated. Accordingly, there is no single time horizon

that will effectively address all potential BAF needs since feedstock net effects are time-dependent and different BAF objectives may target different time horizons. Accordingly, the SAB does not support a single time horizon as appropriate for estimating BAFs.

The Panel suggested that the time horizon should be the length of time it would take for the effect of increased demand for biogenic feedstock on the carbon cycle to reach a steady-state. This occurs when the difference in carbon stocks between the increased biomass feedstock demand scenario and the business-as-usual scenario is no longer changing or when the difference is approaching an asymptote. This could result in a very long time horizon being selected for the BAF calculation, potentially hundreds of years if all feedstocks across all regions were to be included. The selection of such a time horizon would mean that for regulatory objectives with shorter time horizons (e.g., meeting a 2050 emissions target), the accounting would not align with relevant effects of biomass feedstock use at stationary sources on the regulatory objective. Whether it would be appropriate to use a model that can estimate effects over a much longer time horizon to estimate a BAF requiring a shorter time horizon will depend on whether that model can produce reasonable estimates of impacts at the nearer term point in time as well.

Several factors determine the difference in carbon stocks between the business-as-usual scenario and the increased biomass feedstock demand scenario. A major factor is the "speed" with which carbon stocks respond after harvest; this can be influenced by several factors: the speed with which a feedstock regrows and can be harvested again, the mix of feedstocks produced, and the rate at which soil carbon stocks change. Thus, the mix of feedstocks used can influence the shape of the curve and when it reaches equilibrium.

Previous studies have shown that estimates of the effects of biomass harvest on carbon stocks depend on the spatial scale of consideration (stand level or landscape level), the initial conditions of carbon stock on the land (e.g., managed forestland, old growth forestland, or agricultural land), the management practices used, and the time horizon over which effects are measured (Walker et al., 2010; Jonker et al., 2014; Mitchell et al., 2012; Galik and Abt, 2012a, b; Ter-Mikaelian et al., 2015). Harvest of an existing forest stand for use as a feedstock results in an immediate reduction of carbon on the site; the amount of carbon lost at the stand level is directly related to the intensity of the disturbance. At a stand level, harvest followed by regrowth (most US forests regenerate without intervention/planting) usually results in a cycle of loss followed by gain. The amount of carbon regained on the site can vary: in some cases, all is regained, in others only part is regained, and in others, more can be gained than is released.

Since stationary facilities require a continuous supply of feedstock, multiple stands will be disturbed asynchronously; the order in which losses and gains occur becomes meaningless at the landscape level because both simultaneously occur. Thus, the operative issue is the overall balance between losses and gains of carbon at the landscape scale. Thus, stand level accounting is not relevant to the calculation of BAFs for biomass feedstocks used at stationary sources. If harvest does not exceed the rate of carbon accumulation, the landscape-level carbon stocks are stable or increasing. However, there could be a net loss of carbon to the atmosphere at the landscape level, compared with the business-as-usual scenario, if trees are harvested at younger ages or if trees that would otherwise have been unharvested are harvested.

Biomass, particularly from forest sources, is also used for producing non-energy products. The demand for biomass feedstocks for energy generation can lead to a diversion of biomass from those products and lead to an immediate reduction in carbon stocks in products. It is also possible that anticipation of future

demand for biomass feedstocks by stationary facilities could lead to land conversion, reforestation and retention, or accumulation of carbon stocks in a growing forest. In general terms, the amount of either net loss or net gain of carbon on the landscape is influenced by changes in many factors including those influencing net primary production and removals, and the net effect can be expected to vary over time.

When agricultural feedstocks are harvested annually from land under continuous production, the time lag between harvest, CO_2 emissions from conversion to energy, and regrowth on land is likely to be close to one year, and the harvested carbon will be fully regained, with no net impact on above-ground carbon stocks. The production of these feedstocks may directly affect carbon stocks below-ground by increasing or decreasing soil carbon stocks relative to the use of the land in the business-as-usual scenario. The demand for biomass feedstocks can also affect carbon stocks by leading to a change in the use of land which could either release carbon stored in the land (for example if permanent grasslands are converted to annual agricultural production) or accumulate carbon on the land (for example through reforestation as annual cropland is converted back to forests).

Recommendation

- The estimate of direction and magnitude of the impact of using biogenic feedstocks in stationary facilities on terrestrial carbon stocks depends on the time horizon considered. There is no optimal time horizon for evaluating these impacts, and it should be determined by the regulatory context mandating use of BAF.

Charge Question 1(a): Should the temporal scale for computing biogenic assessment factors vary by policy (e.g., near-term policies with a 10-15 year policy horizon vs. mid-term policies or goals with a 30-50 year policy horizon vs. long-term climate goals with a 100+ year time horizon), feedstocks (e.g., long rotation vs. annual/short-rotation feedstocks), landscape conditions, and/or other metrics? It is important to acknowledge that if temporal scales vary by policy, feedstock or landscape conditions, or other factors, it may restrict the ability to compare estimates/results across different policies or different feedstock types, or to evaluate the effects across all feedstock groups simultaneously.

Charge Question 1(a)(i). If temporal scales for computing biogenic assessment factors vary by policy, how should emissions that are covered by multiple policies be treated (e.g., emissions may be covered both by a short-term policy, and a long-term national emissions goal)? What goals/criteria might support choices between shorter and longer temporal scales?

Charge Question 1(a)(ii). Similarly, if temporal scales vary by feedstock or landscape conditions, what goals/criteria might support choices between shorter and longer temporal scales for these metrics?

Charge Question 1(a)(iii). Would the criteria for considering different temporal scales and the related tradeoffs differ when generating policy neutral default biogenic assessment factors versus crafting policy specific biogenic assessment factors?

Charge Question 1(b). Should the consideration of the effects of a policy with a certain end date (policy horizon) only include emissions that occur within that specific temporal scale or should it consider emissions that occur due to changes that were made during the policy horizon but continue on past that end date (emissions horizon)?

The responses to questions 1(a), 1(a)(i), 1(a)(ii), 1(a)(iii), and 1(b) are combined because these questions all relate to goals or criteria that may affect choices of differing temporal scales for calculating BAFs.

Question 1(a) asks specifically if the temporal scale for computing BAFs should vary by regulatory policy. As noted in the overall response to Charge Question 1 (above), the SAB concludes that the BAF computation should be informed by the regulatory objectives, including with respect to time.

If there are different objectives in multiple regulations mandating use of BAFs (as discussed in charge question 1(a)(i)), there are no overriding scientific principles that can be applied *a priori* to guide alignment in the calculation of BAFs for different objectives.

One could advocate for a host of approaches to selecting a time horizon for evaluation; all would be plausible but not inherently aligned with the objective of the regulations being promulgated. At the extremes one could consider only the carbon accounting over the year in which the biomass was combusted; such an approach would mean that almost all feedstocks would be assigned a BAF close to one, representing no net benefit to reducing atmospheric carbon dioxide concentrations. Conversely one could only consider net impacts on the carbon cycle over several hundred years, which would mean for most feedstocks the BAF would be close to zero (assuming steady demand and unchanged rotation lengths thus allowing stocks to come into equilibrium), indicating all biogenic emissions being net beneficial to the atmosphere. Neither of these approaches would align with the most likely objectives of BAFs; however, neither is inherently correct or incorrect.

The time horizon for consideration of carbon stock changes should be chosen based on the specific objective of a regulation, once it is identified (e.g., minimizing net greenhouse gas emissions over a specified period or temperature increase by a certain date). The SAB makes no assertion regarding the appropriate regulatory use of the BAF and thus supports no specific time horizon selected independent of a regulatory requirement.

Charge Question 1(c). Should calculation of the biogenic assessment factor include all future fluxes into one number applied at time of combustion (cumulative – or apply an emission factor only once), or should there be a default biogenic assessment schedule of emissions to be accounted for in the period in which they occur (marginal – apply emission factor each year reflecting current and past biomass usage)?

Accumulating all effects of the use of a biogenic feedstock over a time horizon is preferred to a marginal or instantaneous ("per period") BAF. (For the purposes of answering this question, the SAB interprets "marginal" to mean "annual" or "per period" so as to distinguish it from the meaning of "marginal" that typically refers to the last unit of emissions or the additional effect of the last unit of biomass.)

As described in the overall response to Charge Question 1 (above), the SAB recommends a cumulative carbon accounting metric; however, there are alternative ways to calculate cumulative BAFs. EPA's cumulative BAF (called BAF_T in the 2014 Framework) applied to stocks is one option, reflecting the carbon stocks at the end of the time horizon—specifically, changes in carbon stocks by time, T. One can also calculate a cumulative BAF that is based on the accumulation of annual differences in carbon *stocks* on the land *over the time horizon until equilibrium is reached*, here called $BAF_{\sum T}$. By accumulating annual differences across the projection period, this alternative cumulative BAF metric attempts to

incorporate "residence time" in the sense that it is a proxy for the length of time carbon stays in the atmosphere until it is modified by changing stocks of carbon on the land. While intended to generate a single BAF term at the end of the selected time horizon, either computation can be evaluated at any time of interest. Until the implications of the differences are better understood, we support EPA's cumulative BAF approach, i.e., the difference in carbon stocks *at the end of the selected time horizon*.

The choice of an appropriate cumulative BAF should be informed by a scientific assessment of the dynamics of additions to atmospheric carbon stocks as well as the complexities and uncertainties of these determinations, ensuring the accounting is accurate and verifiable. Both cumulative BAFs attempt to capture net changes in biogenic carbon stocks. A key feature of using carbon stocks is that all terms can be readily aggregated or disaggregated and are still subject to mass balance.

With either approach to evaluating BAFs, caution is advised with projections into the future. A BAF is inherently based on some type of modeling that employs assumptions about the relationship of variables in the future based on current observations. These assumptions may not be robust in the future. Each BAF will need to be assessed periodically to see if changing conditions warrant a revision (Bucholz et al. 2014).

Carbon accounting for biogenic emissions can be framed either using differences in carbon emissions to the atmosphere or using differences in carbon stocks on the land. Conservation of mass dictates that any carbon taken from the land (through increased harvests or other disturbances) will result, in the near-term, in equivalent increases of carbon in the atmosphere, followed by longer-run changes in ocean and land-based carbon. Thus, these approaches are compatible, but examining changes in stocks is operationally more direct and can be done periodically, rather than requiring continuous measurements to be accurate. However, both approaches should account for changes within the boundaries of the analysis, such as import and export of biogenic feedstocks and other associated products.

Long-Term Trends in Biogenic Assessment Factors

The Panel has suggested that cumulative BAFs might approach zero as T is reached. However, that is only true for $BAF_{\Delta t}$ and not the cumulative BAFs – BAF_T and $BAF_{\sum T}$. Mathematically cumulative BAFs are hyperbolic functions once T is reached and have extremely long "tails", representing a period of net CO_2 emissions to the atmosphere.

An approach to determining a baseline that includes an historical time period could be used to periodically reset a reference baseline based on re-measuring carbon stocks on the landscape using data from existing inventory programs. Carbon stock measurements have been made for more than a half century in the US, offering a robust record of change. This approach could improve the accuracy of the baseline over time; however, as noted above, the preference for use of a reference or future anticipated baseline depends on the objective. Future changes in growth-to-harvest ratios could be used to inform the model assumptions and modify the BAF that would be applicable going forward. This could create long-term incentives for sustainable management of land resources. In any accounting framework that assumes future regeneration and regrowth, it is important to periodically test this assumption against actual data as they become available. If assumptions of future regeneration and regrowth are not supported by observations, adjustments need to be made to models that are used to determine BAFs.

Recommendations

- The SAB recommends formulating BAFs based on changes in carbon stocks (terrestrial pools such as live, dead, soil, products, material lost in transport and waste), rather than an emissions-based (flux-based) approach, because the former comports with conventional carbon accounting, has well-defined boundaries, and follows the conservation of mass.

- The SAB suggests consideration of two cumulative BAFs—that proposed by EPA and an alternative metric that takes into account the changes in terrestrial carbon stocks over time. The appropriate cumulative metric for calculating BAFs will depend on the understanding of the carbon system and climate response for which there is uncertainty.

Charge Question 1(d). What considerations could be useful when evaluating the performance of a future anticipated baseline application on a retrospective basis (e.g., looking at the future anticipated baseline emissions estimates versus actual emissions ex post), particularly if evaluating potential implications for/revisions of the future anticipated baseline and alternative scenarios going forward?

It is appropriate to periodically revise the modeling and the BAFs. The goal of such revisions would be to update underlying economic and biophysical assumptions and modeling trends in light of new data to reduce uncertainty and to increase accuracy of future projections.

A retrospective comparison would compare model-projected behavior to newly available historical observations and estimates, such as regional feedstock demand, land-use changes (e.g., reforestation, management intensity, forest rotations characteristics and conversion of land to other land uses including dedicated energy crops), and forest carbon measurements and estimates (both level and composition). It would be important to re-examine parameters, functional forms, and other assumptions of the modeling approach as part of an *ex post* evaluation.

4.2. Scales of Biomass Use

Charge Question 2: What is/are the appropriate scale(s) of biogenic feedstock demand changes for evaluation of the extent to which the production, processing, and use of biogenic material at stationary sources results in a net atmospheric contribution of biogenic CO2 emissions using a future anticipated baseline approach? In the absence of a specific policy to model/emulate, are there general recommendations for what a representative scale of demand shock could be?

Charge Question 2(a). Should the shock reflect a small incremental increase in use of the feedstock to reflect the marginal impact, or a large increase to reflect the average effect of all users?
Charge Question 2(b). What should the general increment of the shock be? Should it be specified in tons, or as a percentage increase?

The responses to questions 2(a) and 2(b) are combined below because both questions relate to the size of the simulated change in demand for biomass feedstocks. The complexities are large and any predictions on scale of demand shock can only be done effectively in a regulatory context as they are very challenging to define otherwise.

If the EPA's goal is to obtain a region-specific BAF for a feedstock, it will be necessary to project region-specific and feedstock-specific demand for biomass. Since the BAF for a feedstock could differ

depending on the method of production (for example, the soil carbon implications of corn stover will depend on the type of tillage practice used and the amount of residue harvested), it will be appropriate to have the BAF for a feedstock in a region reflect the methods used to produce that feedstock. To the extent that BAFs depend on technology and emissions control regulations at a stationary facility in a region, they could also be defined in terms of specific technologies.

Charge Question 2(c). Should the shock be from a business as usual baseline, or from a baseline that includes increased usage of the feedstock (i.e., for a marginal shock, should it be the marginal impact of the first ton, or the marginal impact of something approximating the last ton)?

In the absence of a specific regulation to model, the SAB cannot offer general recommendations for a representative scale of demand shock.

Charge Question 2(d). Should shocks for different feedstocks be implemented in isolation (separate model runs), in aggregate (e.g., across the board increase in biomass usage endogenously allocated by the model across feedstocks), or something in between (e.g., separately model agriculture-derived and forest-derived feedstocks, but endogenously allocate within each category)?

Charge Question 2(e). For feedstocks that are produced as part of a joint production function, how should the shocks be implemented? (e.g., a general increase in all jointly produced products; or, a change in the relative prices of the jointly produced products leading to increased use of the feedstock, and decreased production of some other jointly produced products, but not necessarily an overall increase in production).

The responses to questions 2(d) and 2(e) are combined because both questions relate to modeling biomass feedstocks in isolation or jointly.

In the absence of a mandate for use of specific feedstocks or incentives for specific types of bioenergy which might be prescribed in a regulatory framework, and which would inform the feedstock-specific demand that should be modeled, a reasonable approach is to model the aggregate demand for feedstocks. This approach assumes facilities are constantly seeking their least-cost alternative. An aggregate demand could be imposed on the model and used to determine demand for different feedstocks in different regions. This would allocate demand across feedstocks as well as within each category to simulate a given target aggregate demand determined by the market's ability to draw from the least cost combination of feedstocks.

Charge Question 2(f). How should scale of the policy be considered, particularly for default factors? (e.g., can a single set of default factors be applied to policies that lead to substantially different increases in feedstock usage)?

Default BAFs would likely vary by the scale of demand. In fact, a single set of default BAFs is unlikely to be robust across a wide range of scales of demand. The scale of demand is likely to influence the mix of feedstocks that is viable to produce because it can be expected to affect the market price of biomass. Low levels of demand for biomass may be met relatively easily by crop residues, forest residues and mill residues; high levels of demand could lead to dramatically increased harvests of forest biomass or production of dedicated energy crops. The BAF of a feedstock in a region can be expected to vary

depending on the scale of the demand i.e., a 1-million-ton increase in biomass demand or a 1-billion-ton increase in biomass demand.

In the absence of information about the scale of demand, BAFs could be determined for different threshold levels of aggregate demand for biomass feedstocks and consequent feedstock/region-specific demand.

Charge Question 2(g). Would the answers to any of the above questions differ when generating policy neutral default factors, versus generating factors directly tied to a specific policy?

While the methodological framework for different policies could be similar, we expect differences as follows: (1) BAFs that are tied to a particular regulatory approach, versus a particular period of time, would be based on simulating the aggregate and feedstock-specific demand that is expected to emanate from that regulation, while regulatory neutral factors would be based on various exogenously specified quantities of demand for biomass and corresponding endogenously determined levels of feedstock specific demand, and (2) different regulations may require different production and use practices, and thus result in different biogenic factors. Isolating the extent to which expected increase in demand for biomass and its consequences for CO_2 emissions can be attributed to a specific regulation (when there are multiple regulations inducing a shift to renewable energy) is likely to be complicated and challenging to convert into regulatory-specific BAFs. It could also create unintentionally negative incentives for feedstock choice to comply with various regulations.

Charge Question 2(h). What considerations could be useful when evaluating the performance of the demand shock choice ex post, particularly if evaluating potential implications for/revisions of the future anticipated baseline and alternative scenarios going forward?

It is likely that the observed feedstock demand in response to a specific regulation will differ from the forecast because the regulation can be expected to increase demand for feedstocks with lower BAF and decrease demand for feedstocks with a high BAF. Since feedstock-specific demand and the feedstock BAFs are likely to be jointly determined, while the approach proposed above determines them sequentially, divergence between model simulated demand for feedstocks and observations is inevitable.

An evaluation using actual data would also allow revisions to the EPA's estimates of feedstock demand changes (as discussed in response to Question 1d) based on updated data. To improve the performance of the model for assessing BAFs retrospectively, quantities of biomass feedstock (by feedstock category) harvested could be updated with actual observations. New data should improve the estimate of the portion of total biomass demand that is attributable to stationary facilities. This information could be used to improve BAFs.

REFERENCES

Bucholz, T., Prisley, S., Marland, G., Canham, C. and Sampson, N. (2014) Uncertainty in predicting GHG emissions from bioenergy. *Nature Climate Change* 4:1045

Cherubini, F., Guest, G. and Stromman, A. (2012). Application of Probability Distributions to the Modeling of Biogenic CO2 Fluxes in Lifecycle Assessment. *Global Change Biology Bioenergy* 1 - 15.

Cintas, Olivia, Göran, B., Cowie, A., Egnell, G., Holmstrom, H., Marland, G and Ågren, G. (2017). Carbon balances of bioenergy systems using biomass from forests managed with long rotations: bridging the gap between stand and landscape assessments. *Global Change Biology Bioenergy*. Retrieved from doi: 10.1111/gcbb.12425, 2017

Galik, C.S. and Abt. R.C. (2012a). The effect of assessment scale and metric selection on the greenhouse gas benefits of woody biomass. *Biomass and Bioenergy* 44:1–7.

Galik, Christopher S, and Robert C. Abt. (2012b). "The Effect of Assessment Scale and Metric Selection on the Greenhouse Gas Benefits of Woody Biomass." *Biomass and Bioenergy* 44 (September): 1–7. doi:http://dx.doi.org/10.1016/j.biombioe.2012.04.009.

IPCC (Intergovernmental Panel on Climate Change). (2007). *Changes in Atmospheric Constituents and in Radiative Forcing. In: Climate Change 2007.* Cambridge, United Kingdom and New York, NY. Retrieved from http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter2.pdf.

Jonker, Jan G.G., Junginger, M. and Faaij, A. (2014). "Carbon Payback Period and Carbon Offset Parity Point of Wood Pellet Production in the South-Eastern United States." *Global Change Biology Bioenergy* 6 (4): 371–89. doi:10.1111/gcbb.12056.

Lamb, B.K., Cambaliza, M.O.L., Davis K.J., Edburg, S.L., Ferrara, T.W., Floerchinger, C., Heimburger, A.M.F., Herndon, S., Lauvaux, T., Lavoie, T., Lyon, D.R., Miles, N., Prasad, K.R., Richardson, S., Roscioli, J.R., Salmon, O.E., Shepson, P.B., Stirm, B.H. and Whetstone, J. (2016) Direct and Indirect Measurements and Modeling of Methane Emissions in Indianapolis, Indiana *Environmental Science and Technology.* 50: 8910-8917

Mitchell, Stephen R., Harmon, M.E. and O'Connell, K.E.B. (2012). "Carbon Debt and Carbon Sequestration Parity in Forest Bioenergy Production." *GCB Bioenergy* 4 (6): 818–27. doi:10.1111/j.1757-1707.2012.01173.x.

Ocko, I.B., Hamburg, S.P., Jacob, D.J., Keith, D.W., Keohane, N.O., Oppenheimer, M., Roy-Mayhew, J.D., Schrag, D. P. and Pacala, S.W. (2017*)* Two-valued Global Warming Potential Effectively Captures Long- and Short-term Climate Forcing. *Science.* 356:492-493

Shoemaker, J.K., Schrag, D.P., Molina, M.J. and Ramanathan, V. (2013). "What Role for short-Lived Climate Pollutants in Mitigation Policy?" *Science* 342: 1323-1324.

Ter-Mikaelian, Michael T., Colombo, S.J. and Chen, J. (2015). "The Burning Question: Does Forest Bioenergy Reduce Carbon Emissions? A Review of Common Misconceptions about Forest Carbon Accounting." *Journal of Forestry* 113 (1): 57–68.

U.S. EPA (Environmental Protection Agency). (2011). *Accounting Framework for Biogenic CO_2 Emissions from Stationary Sources.* Office of Atmospheric Programs. Retrieved from https://yosemite.epa.gov/sab/sabproduct.nsf/0/2F9B572C712AC52E8525783100704886/$File/Biogenic_CO2_Accounting_Framework_Report_LATEST.pdf.

U.S. EPA (Environmental Protection Agency). (2014). *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources.* Retrieved from https://yosemite.epa.gov/sab/sabproduct.nsf//LookupWebProjectsCurrentBOARD/3235DAC747C16FE985257DA90053F252/$File/Framework-for-Assessing-Biogenic-CO2-Emissions+(Nov+2014).pdf.

U.S. EPA (Environmental Protection Agency). (2015). *Response to the SAB Panel Peer Review Advisory*. Retrieved from SAB Biogenic Carbon Emissions Panel Meeting Webpage. Retrieved from http://yosemite.epa.gov/sab/SABPRODUCT.nsf/5295DAC6053510F285257DFD0075C181/$File/OAR+Response+to+SAB's+2012+Advice.pdf.

U.S. EPA SAB (U.S. EPA Science Advisory Board). (2012). *SAB Review of EPA's Accounting Framework for Biogenic CO2 Emissions from Stationary Sources*. Retrieved from SAB website : http://yosemite.epa.gov/sab/sabproduct.nsf/57B7A4F1987D7F7385257A87007977F6/$File/EPA-SAB-12-011-unsigned.pdf.

Walker, Thomas, Cardellichio, P., Colnes, A., Gunn, J., Kittler, B. Perschel, B., Recchia,C. and Saah, D. (2010). "Massachusetts Biomass Sustainability and Carbon Policy Study: Report to the Commonwealth of Massachusetts Department of Energy Resources." Manomet Center for Conservation Sciences, no. June: 182. doi:NCI-2010-03.

APPENDIX A: CHARGE TO THE SAB

February 25, 2015

MEMORANDUM

To: **Holly Stallworth, Designated Federal Official**
Science Advisory Board Staff Office

From: **Paul Gunning, Director**
Climate Change Division

Subject: **Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources and Charge Questions for SAB peer review**

The purpose of this memorandum is to transmit the revised *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources,* related documentation and charge questions for consideration by the Science Advisory Board (SAB) during your upcoming peer review.

In January 2011, the U.S. Environmental Protection Agency (EPA) announced a series of steps it would take to address biogenic CO_2 emissions from stationary sources. EPA committed to conduct a detailed examination of the science and technical issues related to assessing biogenic CO_2 emissions from stationary sources and to develop a framework for evaluating those emissions. The draft study was released in September 2011 and subsequently peer reviewed by the SAB Ad-Hoc Panel on Biogenic Carbon Emissions (SAB Panel). The final peer review report was published September 2012.

To continue advancing the agency's technical understanding of the role that biomass use can play in reducing overall greenhouse gas emissions, the EPA released a second draft of the technical report, *Framework for Assessing Biogenic Carbon Dioxide for Stationary Sources*, in November 2014. This revised report presents a methodological framework for assessing the extent to which the production, processing, and use of biogenic material at stationary sources results in a net atmospheric contribution of biogenic CO_2 emissions. The revised report takes into account the SAB Panel's peer review recommendations on the draft 2011 Framework as well as the latest information and input from the scientific community and other stakeholders.

The revised framework addressed many of the SAB Panel's key concerns and recommendations by incorporating: an anticipated baseline approach analysis, including an alternative fate approach for waste-derived feedstocks and certain industrial processing products and byproducts; an evaluation of tradeoffs from using different temporal scales; an improved representation of the framework equation; and illustrative case studies demonstrating how the framework equation can be applied, using region-feedstock combinations to generate regional defaults per different baseline approaches and temporal scales.

We ask the SAB to review and offer recommendations on specific technical elements of the revised framework for assessing the extent to which the production, processing, and use of biogenic material at stationary sources results in a net atmospheric contribution of biogenic CO_2 emissions, as identified in the charge accompanying this memo. We look forward to the SAB's review.

Please contact me if you have any questions about the attached study and charge.

Attachments:

1) *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources*
2) Technical Appendices
3) Response to the 2011 SAB Panel Peer Review Advisory

Peer Review Charge on the Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources

To improve the quality, utility, and scientific integrity of the Framework, EPA is providing this study, *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources* (November 2014) and related materials to the Science Advisory Board (SAB). The revised report takes into account the SAB Biogenic Carbon Emissions Panel's ("SAB Panel") peer review recommendations[2] on the draft 2011 Framework[3] as well as the latest information and input from the scientific community and other stakeholders. The "Response to SAB" document included in the materials provided for this review discusses and responds to the SAB Panel key points and recommendations, serving as a guide to how the revised framework incorporates their recommendations. This charge narrowly focuses on a few specific remaining questions that were not explicitly addressed in the initial SAB Panel peer review report.

The revised 2014 framework report identifies key scientific and technical factors associated with assessing biogenic CO_2 emissions from stationary sources using biogenic feedstocks, taking into account information about the carbon cycle. It also presents a methodological framework for assessing the extent to which the production, processing, and use of biogenic material at stationary sources for energy production results in a net atmospheric contribution of biogenic CO_2 emissions.

The revised framework and the technical appendices address many of the SAB Panel's key concerns and recommendations by incorporating: an anticipated baseline approach analysis (Appendices J-L); an alternative fate approach for waste-derived feedstocks (Appendix N); and certain industrial processing products and byproducts (Appendix D Addendum); an evaluation of tradeoffs from using different temporal scales (Appendix B); an improved representation of the framework equation (Appendix F); and illustrative case studies demonstrating how the framework equation can be applied, using region-feedstock combinations to generate regional defaults per different baseline approaches and temporal scales (Appendices H-N).

[2] The final peer review report from the SAB Panel on the draft 2011 framework was published on September 28, 2012 (Swackhamer and Khanna, 2011). Information about the SAB peer review process for the September 2011 draft framework is available at http://yosemite.epa.gov/sab/sabproduct.nsf/0/2F9B572C712AC52E852578310070488 6

[3] The 2011 *Draft Accounting Framework for Biogenic CO_2 Emissions from Stationary Sources* is available at www.epa.gov/climatechange/ghgemissions/biogenicemissions.html.

As explained in the revised framework introduction and accompanying SAB response document, the revised framework maintains the policy neutral approach from the 2011 draft Framework. It is a technical document that does not set regulatory policy nor does it provide a detailed discussion of specific policy and implementation options. Ultimately, the framework provides a methodological approach for considering, and a technical tool (the framework equation) for assessing, the extent to which there is a net atmospheric contribution of biogenic CO_2 emissions from the production, processing, and use of biogenic material at stationary sources. The revised framework details technical elements that should be considered as appropriate per specific policy applications or biogenic carbon-based feedstock assessments. Therefore, this charge excludes policy and regulatory recommendations or legal interpretation of the Clean Air Act's provisions related to stationary sources.

The revised report does not provide any final values or determinations: it offers indications of different biogenic feedstock production effects per research and analyses conducted, including illustrative example results per specific case study parameters. As discussed by the previous SAB Panel, this report also finds that biophysical and market differences between feedstocks may necessitate different technical approaches. Even using a future anticipated baseline approach, forest- and agriculture-derived feedstock characteristics, and thus analyses and results, may vary per region and per feedstock, and may be influenced by land use change effects. Illustrative analyses conducted for specific waste-derived feedstock case studies using a counterfactual anticipated baseline, as recommended by the SAB Panel, yielded minimal or negative net emissions effects.

This charge focuses on questions that remain regarding whether there are more definitive technical determinations appropriate for parameterizing key elements of the revised framework, regardless of application to a specific policy or program. Specifically, we ask that the SAB Panel examine and offer recommendations on future anticipated baseline specification issues in the context of assessing the extent to which the production, processing, and use of forest- and agriculture-derived biogenic material at stationary sources for energy production results in a net atmospheric contribution of biogenic CO_2 emissions – such as appropriate temporal scales and the scale of biogenic feedstock usage (model perturbations or 'shocks') for analyzing future potential bioenergy production changes.

Technical approaches, merits and challenges with applying a future anticipated baseline

Establishing a baseline creates a point of comparison necessary for evaluating changes to a system.[4] Baseline specification can vary in terms of what entity or groups of entities are being analyzed (e.g., industries, economic sectors), temporal and spatial scales, geographic resolution, and, depending on context, environmental issues/attributes (EPA, 2010).[5] The choice of baseline approach can also depend on the question being asked and the goal of the analysis at hand. For example, some GHG analysis may require a baseline against which historic changes of landscape carbon stocks can be measured. Other applications may necessitate a baseline against which the estimated GHG emissions and sequestration associated with potential future changes in related commodity markets and policy arenas. Analyses of the estimated GHG emissions and sequestration effects from changes in biomass use have used different

[4] Definitions for baseline vary, including "the reference for measurable quantities from which an alternative outcome can be measured" (IPCC AR4 WGIII, 2007) or "the baseline (or reference) is the state against which change is measured. It might be a 'current baseline,' in which case it represents observable, present-day conditions. It might also be a 'future baseline,' which is a projected future set of conditions excluding the driving factor of interest. Alternative interpretations of the reference conditions can give rise to multiple baselines" (IPCC AR4 WGII, 2007).

[5] Guidelines for Preparing Economics Analyses (NCEE), Chapter 5: http://yosemite.epa.gov/ee/epa/eerm.nsf/vwAN/EE-0568-05.pdf/$file/EE-0568-05.pdf

baseline approaches, as well as a wide range of different temporal scales and alternative scenario parameters (Sohngen and Sedjo, 2000; Fargione, 2008; UNFCCC, 2009; Walker et al., 2010; Cherubini et al, 2011; Galik and Abt, 2012; Latta et al., 2013; Walker et al., 2013; AEO, 2014; U.S. EPA, 2014; Miner et al., 2014).

The draft 2011 framework had discussed three different potential baseline approaches – reference point, future anticipated and comparative – and used the reference point baseline in its hypothetical case study applications of the Framework. The SAB Panel in its review stated that "the choice of a fixed reference point may be the simplest to execute, but it does not actually address the question of the extent to which forest stocks would have been growing/declining over time in the absence of a particular bioenergy facility" (SAB Advisory, p. 29). The SAB Panel expressed concern that the reference point baseline does not address the important question of additionality, or what would have been the trajectory of biogenic CO_2 stocks and fluxes in the absence of an activity or activities using biogenic feedstocks for energy, especially in the context of forest-derived feedstocks.[6] "Estimating additionality, i.e., the extent to which forest stocks would have been growing or declining over time in the absence of harvest for bioenergy, is essential, as it is the crux of the question at hand. To do so requires an anticipated baseline approach" (SAB Letter, p. 2).

Through public comments to the SAB Panel during the 2011-2012 SAB peer review process, various stakeholders expressed divergent perspectives on the appropriate baseline for the draft 2011 framework report.[7] The revised 2014 framework retains the reference point baseline and adds the anticipated baseline in order to retain adaptability for potential applications, and discusses both approaches at length in the revised report and several technical appendices. However, as the SAB Panel was clear in its previous review of the reference point baseline, EPA has no outstanding technical questions for the SAB Panel on that baseline approach. This charge focuses specifically on remaining technical questions that EPA has on the future anticipated baseline approach.

Part 1 – Future anticipated baseline approach and temporal scale

It is important to consider possible treatments of time and the implications of these treatments in developing strategies for long-term and short-term emissions assessment, because the choice of treatment may have significant impacts on the resultof an assessment framework application. For the intended use of the revised Framework – assessing the extent to which the production, processing, and use of biogenic material at stationary sources results in a net atmospheric contribution of biogenic CO_2

[6] The difference in net atmospheric CO_2 emissions contributions with and without changes in biogenic feedstock use is known as additionality (Murray et al., 2007). Additionality can be determined by assessing the difference in potential net atmospheric CO_2 emissions of a specific level of biogenic feedstock use over a certain period of time (in many cases the business-as-usual [BAU] baseline) versus the net atmospheric CO_2 emissions contributions that would have occurred over the same time period with a different level of biogenic feedstock use (counterfactual scenario), holding other factors and assumptions consistent between scenarios.

[7] The American Forest and Paper Association (AF&PA) supported the reference point baseline (e.g., comments submitted October 2011, March 2012) applied historically (January 2012, March 2012). The National Alliance of Forest Owners (NAFO) stated if certain feedstocks weren't categorically excluded, then the historical reference point baseline should be used (e.g., March 2012, August 2012). The U.S. Department of Agriculture stated preference for a historic baseline approach (May 2012). The Environmental Defense Fund (EDF) (January 2012, May 2012) and NCASI (October 2011, March 2012) both supported the retrospective reference point approach, though also both offered recommendations if an anticipated baseline approach was included (EDF for future anticipated and NCASI for counterfactual). Others, such as Green Power Institute (March 2012), the National Resource Defense Council (NRDC, August 2012), Becker et al. (August 2012), Biomass Energy Resource Center et al. (February 2012), and a group scientists letter to EPA (June 2014) all support some form of the anticipated baseline approach (future anticipated and/or counterfactual).

emissions – there are different elements of time to consider when using a future anticipated baseline approach. These elements can include:

- Emissions horizons, assessment or policy horizons, and reporting periods (i.e., fluxes related to feedstock production may occur over many years to decades, whereas reporting may be the current year and policies may cover only a few years or decades), and
- Differences in temporal characteristics of different feedstocks (i.e., annual crops, short rotation energy crops, and longer rotation forestry systems).
- Changes in biophysical and economic conditions over time may affect or differ from those in future anticipated baseline and scenario estimates.

The SAB Panel in its previous peer review noted that "this is a complicated subject because there are many different time scales that are important for the issues associated with biogenic carbon emissions" (Advisory, page 13). They discussed multiple temporal scales associated with mixing of carbon throughout the different reservoirs on the Earth's surface at the global scale (Advisory, page 13) and climate responses to CO_2 and other greenhouse gases (Advisory, page 15), implications of temporal scales greater and shorter than 100 years, and those related to the growth cycles of different feedstock types (Advisory, page 15). The SAB Panel specifically highlighted considerations for using a 100-year or longer temporal scale for evaluating climate impacts and radiative forcing[8] as well as decay rates and carbon storage in forest ecosystems in the main text as well as in Appendices B-D. However, in its recommendations, including those for developing default BAFs per region, the SAB Panel did not offer recommendations per what temporal scale to use in the specific context of the Framework for its intended use and scope. Instead, the SAB Panel stated that "there is no scientifically correct answer when choosing a time horizon, although the *Framework* should be clear about what time horizon it uses, and what that choice means in terms of valuing long term versus shorter term climate impacts (Advisory, page 15) and recommended that a revised framework "incorporate various time scales and consider the tradeoffs in choosing between different time scales" (Advisory, page 43).

Multiple stakeholders have also weighed in on temporal scales, some with specific recommendations on what temporal scale should/could be used for framework assessments, others with no specific recommendations but emphasizing the importance of time. In various comments submitted during the 2011-2012 SAB process, NAFO supported a 100-year timeframe (March 2012). The National Council for Air and Stream Improvement (NCASI) in October 2011 comments suggested "the need for considerable flexibility in setting the temporal scales for determining the stability of forest carbon stocks. There are a range of circumstances that can cause transient trends in carbon stocks that can obscure the more relevant long-term picture."

Other groups, such as The Wilderness Society (TWS), NRDC, EDF and others, submitted comments supporting consideration of shorter temporal scales. In its comments and example calculations, TWS (in October 2011 comments) implied support for shorter temporal scales, and stated in later comments that

[8] EPA acknowledges that the long-term climate impacts of shifting from fossil fuel to biogenic energy sources is an important topic for climate change mitigation policy and also recognizes the extensive work being conducted by EPA and throughout the research community on this question. However, EPA's focus here is on a narrower, more targeted goal of developing tools to assess the extent to which there is a net atmospheric contribution of biogenic CO_2 emissions from the production, processing, and use of biogenic feedstocks at stationary sources. This more narrowly defined assessment is anticipated to be a better fit for the types of program and policy applications in which this framework may potentially be applied.

the SAB "text appears biased toward ignoring effects that occur within a 100-year period" (May 2012). NRDC (August 2014) implied support for shorter temporal scales: "even if near-term carbon emissions increases are eventually 'made up' by regrowth over the very long term, the carbon emission from these types of biomass actually exceed those from fossil fuels for decades. This puts use of these types of biomass fuels in conflict with the urgent need for near-term carbon emissions reductions. The time profile of the carbon emission from biogenic fuel sources matters because it is critical to limit near-term global GHG emissions." This perspective was similar to that shared by Becker et al. in their August 2012 comments. EDF (January 2012) suggested a very short temporal scale (in the context of supporting a retrospective reference baseline). Others, such as the Biotechnology Industry Organization (October 2011) simply asked for "clarification on the methodology used to identify the time scale of carbon cycles."

Per the various recommendations above, the revised framework report and the technical appendices include a more detailed discussion of intertemporal tradeoffs inherent in various options for treating emissions over time in the context of assessing biogenic CO_2 emissions from stationary sources. Specifically, the revised report has: a section on key temporal scale considerations (pages 33-38); an appendix dedicated to temporal scale issues (Appendix B), which includes further discussion of temporal scales in the context of future anticipated baselines and decay rates for feedstocks that would have otherwise decayed if not used for energy, and; an appendix describing the background of and modeling considerations for constructing an anticipated baseline approach (Appendix J). Also, illustrative calculations using the future anticipated baseline estimates use future simulations and thereby explicitly incorporate temporal patterns of different feedstocks (e.g., feedstock growth rates, decay rates) into the analysis and shows how results can vary per temporal scale used (as seen in Appendices K and L). The revised framework does not recommend specific temporal scales for framework applications, but rather identifies different elements of and considerations concerning time to provide insights into the potential implications of using different temporal scales.

EPA seeks guidance on the following issues regarding appropriate temporal scales for assessing biogenic CO_2 emissions using a future anticipated baseline, using the above referenced components of the revised framework report as the starting point for the SAB Panel's discussion. As the previous SAB Panel recommended developing default assessment factors by feedstock category and region that may need to be developed outside of a specific policy context, and as the framework could be also be used in specific policy contexts, the questions below relate to the choice of temporal scale both within and outside of a specific policy context.

Part 1 – Future anticipated baseline approach and temporal scale

1. What criteria could be used when considering different temporal scales and the tradeoffs in choosing between them in the context of assessing the net atmospheric contribution of biogenic CO2 emissions from the production, processing, and use of biogenic material at stationary sources using a future anticipated baseline?

    a. Should the temporal scale for computing BAFs vary by policy (e.g., near-term policies with a 10-15 year policy horizon vs. mid-term policies or goals with a 30-50 year policy horizon vs. long-term climate goals with a 100+ year time horizon), feedstocks (e.g., long rotation vs. annual/short-rotation feedstocks), landscape conditions, and/or other metrics? It is important to acknowledge that if temporal scales vary by policy, feedstock

or landscape conditions, or other factors, it may restrict the ability to compare estimates/results across different policies or different feedstock types, or to evaluate the effects across all feedstock groups simultaneously.

i. If temporal scales for computing BAFs vary by policy, how should emissions that are covered by multiple policies be treated (e.g., emissions may be covered both by a short-term policy, and a long-term national emissions goal)? What goals/criteria might support choices between shorter and longer temporal scales?
ii. Similarly, if temporal scales vary by feedstock or landscape conditions, what goals/criteria might support choices between shorter and longer temporal scales for these metrics?
iii. Would the criteria for considering different temporal scales and the related tradeoffs differ when generating policy neutral default BAFs versus crafting policy specific BAFs?

b. Should the consideration of the effects of a policy with a certain end date (policy horizon) only include emissions that occur within that specific temporal scale or should it consider emissions that occur due to changes that were made during the policy horizon but continue on past that end date (emissions horizon)?
c. Should calculation of the BAF include all future fluxes into one number applied at time of combustion (cumulative – or apply an emission factor only once), or should there be a default biogenic assessment schedule of emissions to be accounted for in the period in which they occur (marginal – apply emission factor each year reflecting current and past biomass usage)?
d. What considerations could be useful when evaluating the performance of a future anticipated baseline application on a retrospective basis (e.g., looking at the future anticipated baseline emissions estimates versus actual emissions *ex post*), particularly if evaluating potential implications for/revisions of the future anticipated baseline and alternative scenarios going forward?

Part 2 – Scales of biomass use when applying future anticipated baseline approach

EPA seeks guidance on technical considerations concerning how to select model perturbations ('shocks') for future anticipated baseline simulations estimating the net atmospheric contribution of biogenic CO2 emissions from the production, processing, and use of biogenic material at stationary sources, using the above referenced components of the revised framework report as the starting point for the SAB Panel's discussion. As the SAB Panel recommended developing default assessment factors by feedstock category and region that may need to be developed outside of a specific policy context, and as the framework could be also be used in specific policy contexts, the questions below relate to the choice of model shocks both within and outside of a specific policy context.

2. What is/are the appropriate scale(s) of biogenic feedstock demand changes for evaluation of the extent to which the production, processing, and use of biogenic material at stationary sources results in a net atmospheric contribution of biogenic CO2 emissions using a future anticipated baseline approach? In the absence of a specific policy to model/emulate, are there general recommendations for what a representative scale of demand shock could be?
   a. Should the shock reflect a small incremental increase in use of the feedstock to reflect the marginal impact, or a large increase to reflect the average effect of all users?

b. What should the general increment of the shock be? Should it be specified in tons, or as a percentage increase?
c. Should the shock be from a business as usual baseline, or from a baseline that includes increased usage of the feedstock (i.e., for a marginal shock, should it be the marginal impact of the first ton, or the marginal impact of something approximating the last ton)?
d. Should shocks for different feedstocks be implemented in isolation (separate model runs), in aggregate (e.g., across the board increase in biomass usage endogenously allocated by the model across feedstocks), or something in between (e.g., separately model agriculture-derived and forest-derived feedstocks, but endogenously allocate within each category)?
e. For feedstocks that are produced as part of a joint production function, how should the shocks be implemented? (e.g., a general increase in all jointly produced products; or, a change in the relative prices of the jointly produced products leading to increased use of the feedstock, and decreased production of some other jointly produced products, but not necessarily an overall increase in production).
f. How should scale of the policy be considered, particularly for default factors? (e.g., can a single set of default factors be applied to policies that lead to substantially different increases in feedstock usage)?
g. Would the answers to any of the above questions differ when generating policy neutral default factors, versus generating factors directly tied to a specific policy?
h. What considerations could be useful when evaluating the performance of the demand shock choice *ex post*, particularly if evaluating potential implications for/revisions of the future anticipated baseline and alternative scenarios going forward

Appendix B: Members of the Biogenic Carbon Emissions Panel

CHAIR

Dr. Madhu Khanna, ACES Distinguished Professor in Environmental Economics, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, Urbana, IL

PANEL MEMBERS

Dr. Robert Abt, Professor of Forestry, Department of Forestry and Environmental Resources, College of Natural Resources, North Carolina State University, Raleigh, NC

Dr. Morton Barlaz, Professor, Civil, Construction, and Environmental Engineering, Engineering, North Carolina State University, Raleigh, NC

Dr. Marilyn Buford, National Program Leader, Silviculture Research, Research & Development, USDA Forest Service, Washington, DC

Dr. Mark Harmon, Professor and Richardson Chair, College of Forestry, Oregon State University, Corvallis, OR

Dr. Jason Hill, Associate Professor, Bioproducts and Biosystems Engineering, College of Food, Agricultural and Natural Resource Sciences, University of Minnesota, St. Paul, MN

Dr. John Reilly, Senior Lecturer and Co-Director, Joint Program on the Science and Policy of Global Change, Center for Environmental Policy Research, E19-439L, Massachusetts Institute of Technology, Cambridge, MA

Dr. Charles Rice, Distinguished Professor, Department of Agronomy, Soil Microbiology, Kansas State University, Manhattan, KS

Dr. Steven Rose, Senior Research Economist, Energy and Environmental Analysis Research Group, Electric Power Research Institute, Palo Alto, CA

Dr. Daniel Schrag, Professor of Earth and Planetary Sciences, Harvard University, Cambridge, MA

Dr. Roger Sedjo, Senior Fellow and Director of the Center for Forest Economics and Policy Program, Resources for the Future, Washington, DC

Dr. Ken Skog, Supervisory Research Forester (retired), Economics and Statistics Research, Forest Products Laboratory, USDA Forest Service, Madison, WI

Dr. Tristram West, Ecosystem Scientist, Joint Global Change Research Institute, University of Maryland, College Park, MD

Dr. Peter Woodbury, Senior Research Associate, Department of Crop and Soil Sciences, College of Agriculture and Life Sciences, Cornell University, Ithaca, NY, U.S.A.

SCIENCE ADVISORY BOARD STAFF

Dr. Holly Stallworth, Designated Federal Officer, U.S. Environmental Protection Agency, Washington, DC

Message

From: Konkus, John [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: 3/20/2019 4:42:42 PM
To: Dunlap, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=591eb15a268249dda0c05a7451f765c3-Dunlap, Dav]
CC: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]; Fitzmorris, Amanda [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4051a5cf28144ee599b7cb3e9c2527bf-Fitzmorris,]
Subject: RE: CASAC, manipulative causation, your draft letter on the ISA for pm/ Media request

Or maybe Ex. 5 Deliberative Process (DP)

From: Dunlap, David
Sent: Wednesday, March 20, 2019 12:39 PM
To: Konkus, John <konkus.john@epa.gov>
Cc: Woods, Clint <woods.clint@epa.gov>; Fitzmorris, Amanda <fitzmorris.amanda@epa.gov>
Subject: Re: CASAC, manipulative causation, your draft letter on the ISA for pm/ Media request

Deliberative Process / Ex. 5 I only suggest Deliberative Process / Ex. 5 Dr. Cox's email response Deliberative Process / Ex. 5
Deliberative Process / Ex. 5

DDD

David D. Dunlap
Deputy Assistant Administrator
EPA Office of Research & Development
Offic Personal Email / Ex. 6

On Mar 20, 2019, at 12:19 PM, Konkus, John <konkus.john@epa.gov> wrote:

> I think, now that Dr. Cox has given his response, we can give her a higher level response of our own. Thoughts?
>
> **Deliberative Process / Ex. 5**
>
> **From:** Yeow, Aaron
> **Sent:** Wednesday, March 20, 2019 12:15 PM
> **To:** Press <Press@epa.gov>
> **Cc:** Brennan, Thomas <Brennan.Thomas@epa.gov>
> **Subject:** FW: CASAC, manipulative causation, your draft letter on the ISA for pm/ Media request
>
> FYI...
>
> -Aaron

Aaron Yeow, M.P.H.
Designated Federal Officer
U.S. Environmental Protection Agency
Science Advisory Board
202-564-2050 (P)
202-565-2098 (F)

Mailing Address:
USEPA, 1200 Pennsylvania Avenue, NW, (1400R), Washington, DC 20460

Physical Location/Deliveries:
1300 Pennsylvania Avenue, NW, Suite 31150, Washington, DC 20004

From: tcox[redacted] **Personal Email / Ex. 6**
Sent: Wednesday, March 20, 2019 11:06 AM
To: susanne.rust@latimes.com
Cc: Yeow, Aaron <Yeow.Aaron@epa.gov>
Subject: CASAC, manipulative causation, your draft letter on the ISA for pm/ Media request

Susanne, my answers follow. These are my own personal views; I am not speaking for the CASAC or the EPA.

Please let me know any other questions.

Best,

-- Tony

1) Your email suggests the letter you wrote on March 7 to Administrator Wheeler is not a consensus letter. Have the other members of CASAC reviewed it?

The March 7 letter/report is a draft, not yet finalized nor transmitted to Administrator Wheeler. The draft is currently under review by the CASAC for our meeting later this month. After the CASAC deliberates on the draft letter/report, it will be revised accordingly and finalized as a consensus letter/report and transmitted to the Administrator.

2) Do you think you will get consensus?

TC: The purpose of the March 28 teleconference is for the CASAC to deliberate on the Draft letter/report, discussing any revisions necessary to finalize it as a consensus letter/report for transmittal to the Administrator.

3) In the letter, you ask for two things: A new draft ISA and "access to additional technical expertise, as needed" for draft review. Many of the committee are asking for a reappointment of the PM panel. Are you asking for that, as well? And if not, can you be specific about what you are asking for? What you envision this would be/ look like?

TC: As indicated to you previously, the draft letter/report is still draft, is intended to aid in meeting deliberations, and is not to be quoted or cited as it is not final and may be revised as a result of CASAC deliberations. Therefore I will not comment directly on the

draft letter/report. However, two things that came out of the CASAC discussions at the public meeting in December are that the ISA should provide clear definitions of key terms and that it should follow standard scientific method in deriving its conclusions from data and documenting their derivations. These requests are made in response to the specific charge questions that EPA asked us to respond to. These charge questions do not ask the CASAC to opine or to offer consensus opinions on whether to reappoint the PM panel. However, at the public meeting in December, the members of CASAC agreed that we should ask for ready access to any additional technical expertise needed to thoroughly and responsibly review the scientific aspects of the ISA when they have been developed. Once the ISA is revised to clarify the derivations of its key conclusions, different sets of detailed expertise may become valuable in reviewing those derivations.

4) Your comments suggest that you found the first ISA draft wanting. You use words such as "untrustworthy" "subjective" that is full of "opinions." Is this your view? Or all of CASAC's? And is it your opinion that 11 iterations of CASAC panels, which included nearly 140 independent scientists, were non-scientific and lacking objectivity?

TC: The charge questions given to us do not call for the CASAC to formulate opinions about the work of previous CASAC panels. Our focus is on the current Draft ISA. At the public meeting in December, we discussed opportunities for more thorough and systematic coverage of relevant literature, clearer definitions of key terms used to communicate conclusions, and closer adherence to the scientific method. The draft letter/report will be deliberated by the CASAC on the March 28 teleconference and the final letter/report that will be transmitted to the Administrator will be the CASAC's consensus advice.

5) Many scientists I have spoken to say your viewpoint of PM science is fringe, and that your views are outside the mainstream. How do you respond to this?

TC: My viewpoint on PM science is that it should be held to the same standards as other types of applied science. This implies that it should provide clear definitions of key terms, independently verifiable and reproducible derivations of conclusions, and empirical tests of its predictions. I have no response to whether people label such requirements as mainstream or fringe; to me, they are important parts of sound, reproducible, trustworthy science, and that is what I care about.

6) Scientists I have spoken to - and included in the Goldman/ Dominici essay - suggests your leadership on this panel is reckless, that you are pushing fringe views without consideration of decades worth of scientific precedence - , and as a result, you are putting EPA in a precarious spot: They can accept your input and adjust their draft accordingly, as they are supposed to do by policy (even if they disagree with your science, and discard the viewpoints of former panels including scores of scientists), or they ignore you, thus eroding the credibility and importance of the CASAC process. What are your thoughts on this?

TC: I believe and hope that this view is incorrect. I believe that EPA is committed to doing good science and the goal of CASAC is to provide advice on the science.

7) Do you believe that particulate matter is linked to death?

TC: If by "linked" you mean "associated with," then yes: PM is associated with death in many studies. For example, my own research and the research of many other scientists in many countries over many decades has confirmed positive associations among extreme temperatures, PM exposure concentrations, and mortality rates in multiple data sets. More generally, as I stated in a recent paper (www.ncbi.nlm.nih.gov/pubmed/29627760), "Associations between fine particulate matter (PM2.5) exposure concentrations and a wide variety of undesirable outcomes, from autism and auto theft to elderly mortality, suicide, and violent crime, have been widely reported. Influential articles have argued that reducing National Ambient Air Quality Standards for PM2.5 is desirable to reduce these outcomes. Yet, other studies have found that reducing black smoke and other particulate matter by as much as 70% and dozens of micrograms per cubic meter has not detectably affected all-cause mortality rates even after decades, despite strong, statistically significant positive exposure concentration-response (C-R) associations between them."

8) And finally - I understand you are an independent consultant who has worked for the petroleum and chemical industries in the past. Do you feel your viewpoints are influenced by your funding sources?

TC: I have done independent research and consulting for national and international governments, the World Health Organization, a wide variety of industries (predominantly, telecommunications and healthcare), a wide variety of state and Federal agencies (including the EPA, but also USDA, FDA, DOE, and others) under multiple administrations. In all cases, I try to make sure that all of my conclusions are backed by independently verifiable derivations from data, and that I follow the data wherever it leads, without regard for funding sources.

Message

From: Dunlap, David [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=591EB15A268249DDA0C05A7451F765C3-DUNLAP, DAV]
Sent: 3/20/2019 2:08:14 PM
To: Konkus, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=555471b2baa6419e8e141696f4577062-Konkus, Joh]
CC: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]; Fitzmorris, Amanda [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4051a5cf28144ee599b7cb3e9c2527bf-Fitzmorris,]
Subject: Re: CASAC, manipulative causation, your draft letter on the ISA for pm/ Media request

John,

Deliberative Process / Ex. 5

Thanks

DDD

David D. Dunlap
Deputy Assistant Administrator
EPA Office of Research & Development
Office Personal Email / Ex. 6

On Mar 20, 2019, at 9:59 AM, Konkus, John <konkus.john@epa.gov> wrote:

> Yes
>
> **From:** Dunlap, David
> **Sent:** Wednesday, March 20, 2019 9:38 AM
> **To:** Woods, Clint <woods.clint@epa.gov>
> **Cc:** Konkus, John <konkus.john@epa.gov>; Fitzmorris, Amanda <fitzmorris.amanda@epa.gov>
> **Subject:** Re: CASAC, manipulative causation, your draft letter on the ISA for pm/ Media request
>
> **Deliberative Process / Ex. 5** Tony Cox? **Deliberative Process / Ex. 5**
>
> DDD
>
> David D. Dunlap
> Deputy Assistant Administrator
> EPA Office of Research & Development
> Office 202.564.6620
>
> On Mar 20, 2019, at 8:46 AM, Woods, Clint <woods.clint@epa.gov> wrote:
>
> > If we want to provide a statement, think it should say something like:
> >
> > **Deliberative Process / Ex. 5**

Deliberative Process / Ex. 5

On Mar 20, 2019, at 8:40 AM, Konkus, John <konkus.john@epa.gov> wrote:

> Looping Clint...
>
> On Mar 20, 2019, at 8:37 AM, Dunlap, David <dunlap.david@epa.gov> wrote:
>
> > Has Clint been made aware?
> >
> > DDD
> >
> > David D. Dunlap
> > Deputy Assistant Administrator
> > EPA Office of Research & Development
> > Offic Personal Email / Ex. 6
> >
> > On Mar 20, 2019, at 8:26 AM, Konkus, John <konkus.john@epa.gov> wrote:
> >
> > > We need to get something to this reporter ASAP!
> > >
> > > **From:** Yeow, Aaron
> > > **Sent:** Tuesday, March 19, 2019 2:29 PM
> > > **To:** Press <Press@epa.gov>
> > > **Cc:** Brennan, Thomas <Brennan.Thomas@epa.gov>
> > > **Subject:** FW: CASAC, manipulative causation, your draft letter on the ISA for pm/ Media request
> > >
> > > FYI...
> > >
> > > -Aaron
> > >
> > > Aaron Yeow, M.P.H.
> > > Designated Federal Officer
> > > U.S. Environmental Protection Agency
> > > Science Advisory Board
> > > 202-564-2050 (P)
> > > 202-565-2098 (F)
> > >
> > > Mailing Address:
> > > USEPA, 1200 Pennsylvania Avenue, NW,
> > > (1400R), Washington, DC 20460

Physical Location/Deliveries:
1300 Pennsylvania Avenue, NW, Suite 31150, Washington, DC 20004

From: Ex. 6
Ex. 6
Sent: Tuesday, March 19, 2019 1:37 PM
To: susanne.rust@latimes.com
Cc: Yeow, Aaron <Yeow.Aaron@epa.gov>
Subject: Re: CASAC, manipulative causation, your draft letter on the ISA for pm/ Media request

Dear Susanne,

I am tied up today, but can probably answer some questions via e-mail by late tonight.

The views of the CASAC on the Draft ISA are currently in the process of being formed. As the header of my draft letter and our draft report states: "Clean Air Scientific Advisory Committee (CASAC) Draft Report (03/07/19) to Assist Meeting Deliberations -Do Not Cite or Quote- This draft CASAC report is a work in progress, does not reflect consensus advice or recommendations, has not been reviewed or approved by the Chartered CASAC, and does not represent EPA policy."

My draft letter to Admimistrator Wheeler does not mention manipulative causation, but does call for clear operational definitions of key terms and concepts and application of traditional scientific method. To me, both are crucial parts of mainstream science.

Best,

-- Tony

-----Original Message-----
From: Rust, Susanne <susanne.rust@latimes.com>
To: Ex. 6
Ex. 6
Sent: Tue, Mar 19, 2019 9:40 am
Subject: CASAC, manipulative causation, your draft letter on the ISA for pm/ Media request

Dear Dr. Cox,

An essay about your draft letter to Administrator Wheeler on CASAC's thoughts on the EPA's ISA for particulate matter will be printed in the journal Science later this week.
It suggests that your determination that the ISA is unverified is flawed, and that your push for manipulative causation as a filter through which to see the health effects of particulate matter is not mainstream, and irresponsible.
I wonder if I could talk to you about your letter, your thoughts, and the views of the CASAC on the EPA's draft ISA?
Let me know when would be a good time to talk.
Thanks for your time and consideration.
Susanne Rust

Reporter, The Los Angeles Times
650-804-6790

Message

From: Block, Molly [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=60D0C681A16441A0B4FA16AA2DD4B9C5-BLOCK, MOLL]
Sent: 10/10/2018 8:17:37 PM
To: Jackson, Ryan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=38bc8e18791a47d88a279db2fec8bd60-Jackson, Ry]
CC: Abboud, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6f5af791a1842f1adcc088cbf9ed3ce-Abboud, Mic]; Beach, Christopher [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6b124299bb6f46a39aa5d84519f25d5d-Beach, Chri]; Gunasekara, Mandy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=53d1a3caa8bb4ebab8a2d28ca59b6f45-Gunasekara,]; Konkus, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=555471b2baa6419e8e141696f4577062-Konkus, Joh]; Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]; Dunlap, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=591eb15a268249dda0c05a7451f765c3-Dunlap, Dav]
Subject: FOR REVIEW: Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee - Preview

Per John's email, here's a mocked up press release to review. Thanks!

Molly

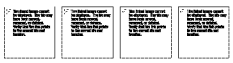
Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

For more information, visit EPA's NAAQS review and CASAC websites.

Visit The EPA's Newsroom



Like
Tweet
Share
Forward

U.S. Environmental Protection Agency
1200 Pennsylvania Avenue Northwest
Washington, D.C. 20004

Message

From: Konkus, John [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: 10/10/2018 8:11:16 PM
To: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]; Abboud, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6f5af791a1842f1adcc088cbf9ed3ce-Abboud, Mic]; Beach, Christopher [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6b124299bb6f46a39aa5d84519f25d5d-Beach, Chri]
CC: Gunasekara, Mandy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=53d1a3caa8bb4ebab8a2d28ca59b6f45-Gunasekara,]; Dunlap, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=591eb15a268249dda0c05a7451f765c3-Dunlap, Dav]; Block, Molly [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=60d0c681a16441a0b4fa16aa2dd4b9c5-Block, Moll]
Subject: RE: Draft CASAC Release

Ryan: FYI we are (need to) sending this our this evening as soon as I circle up with Thomas Brennan…Molly will be sending around a draft shortly. We may need you to approve Wheeler's quote as he's in the air until 6pm. By then it will be too late.

From: Woods, Clint
Sent: Tuesday, October 9, 2018 11:55 AM
To: Abboud, Michael <abboud.michael@epa.gov>; Konkus, John <konkus.john@epa.gov>; Beach, Christopher <beach.christopher@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dunlap, David <dunlap.david@epa.gov>
Subject: Draft CASAC Release

Deliberative Process / Ex. 5

The seven-member chartered CASAC [need to update
link: https://yosemite.epa.gov/sab/sabpeople.nsf/WebExternalCommitteeRosters?OpenView&committee=CASAC&secondname=Clean%20Air%20Scientific%20Advisory%20Committee%20] will consist of the following experts:

- Dr. Anthony (Tony) Cox, Cox Associates (Chair)
- Dr. James Boylan, Georgia Department of Natural Resources
- Dr. Mark Frampton, University of Rochester Medical Center
- Dr. Sabine Lange, Texas Commission on Environmental Quality
- Dr. Timothy Lewis, U.S. Army Corps of Engineers
- Dr. Corey Masuca, Jefferson County (AL) Department of Health
- Dr. Steven Packham, Utah Department of Environmental Quality

Deliberative Process / Ex. 5

Message

From: Konkus, John [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: 10/10/2018 3:58:31 PM
To: Abboud, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6f5af791a1842f1adcc088cbf9ed3ce-Abboud, Mic]
CC: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]
Subject: RE: Reveal News request -- CASAC

OK

From: Abboud, Michael
Sent: Wednesday, October 10, 2018 11:58 AM
To: Konkus, John <konkus.john@epa.gov>
Cc: Woods, Clint <woods.clint@epa.gov>
Subject: Re: Reveal News request -- CASAC

Deliberative Process / Ex. 5

Sent from my iPhone

On Oct 10, 2018, at 11:55 AM, Konkus, John <konkus.john@epa.gov> wrote:

> **From:** Jason Plautz [mailto:jason.plautz@gmail.com]
> **Sent:** Wednesday, October 10, 2018 11:47 AM
> **To:** Konkus, John <konkus.john@epa.gov>
> **Subject:** Re: Reveal News request -- CASAC
>
> Hi John,
>
> Circling back on this. Anything by mid-day tomorrow would be helpful so I can get them in edits. Feel free to call at 847.826.2157.
>
> -Jason Plautz
> 847.826.2157 (c)
> www.jasonplautz.com
>
> On Fri, Oct 5, 2018 at 10:38 AM Jason Plautz <jason.plautz@gmail.com> wrote:
>
> > Hi John,
> >
> > We spoke back when I was at National Journal -- I've since left DC and relocated to Denver. I'm currently working on a story for Reveal about CASAC chair Tony Cox, and more broadly the NAAQS process. I had a few questions, please see below.
> >
> > -Is there a timeline for acting administrator Wheeler to announce new members of SAB and CASAC? Likewise, is there a timeline for the ozone review panel?
> > -Administrator Pruitt issued a memo on the NAAQS process this spring that proposed streamlining the scientific review process. Have any more details on how that streamlining would work been

announced? How does EPA respond to criticism that condensing the scientific review -- eliminating the '"ping-pong" review process' described in the memo -- would eliminate some of CASAC's scientific role and force it to consider policy at the same time it normally considers health science?
-Tony Cox has worked on behalf of several industry groups and has publicly criticized previous EPA NAAQS decisions, including making statements contrary to the conclusions of CASAC reviews on ozone and particulate matter. Given concerns about conflict of interest, did Cox's previous industry work not represent a conflict of interest? How does EPA respond to criticism that his previous statements on NAAQS standards means he comes into the panel with bias?

Anything by COB Monday would be great. You can give me a call at 847.826.2157. Thanks.

-Jason Plautz
Journalist
847.826.2157 (c)
www.jasonplautz.com

To: Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]; Woods, Clint[woods.clint@epa.gov]; Block, Molly[block.molly@epa.gov]; Beach, Christopher[beach.christopher@epa.gov]; Abboud, Michael[abboud.michael@epa.gov]; Hewitt, James[hewitt.james@epa.gov]
From: Konkus, John[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: Fri 11/30/2018 9:02:26 PM (UTC)
Subject: FW: new york times on epa and air quality

Here's the article: https://www.nytimes.com/2018/11/30/style/air-quality-pollution-monitors.html. They didn't include any of our response, not even a sentence or a word.

From: Konkus, John
Sent: Thursday, November 29, 2018 5:12 PM
To: Bowles, Nellie <Nellie.bowles@nytimes.com>
Cc: Press <Press@epa.gov>; Jones, Enesta <Jones.Enesta@epa.gov>
Subject: RE: new york times on epa and air quality

Nellie: We've responded to each item below in bold. You can use all of this on the record and you can attribute it to me. Thank you.
John Konkus
Environmental Protection Agency
Deputy Associate Administrator for Public Affairs
Mobile: (202) 365-9250

- The administration is working to overhaul restrictions on coal, which by its own estimates could lead to as many as 1,400 more premature deaths annually by 2030 from an increase in the airborne particulate matter.

This is not accurate and previous New York Times' reporting is misleading and fails to provide important context to the numbers they are referring to. The 1,400 premature deaths compares the ACE proposal to a future world that would have had the Clean Power Plan (CPP). However, the future world with the CPP does not exist outside of comparative analytics. In reality, the CPP was stayed by the Supreme Court in 2016 and thus was never implemented. In reality, the ACE rule will result in dramatic reductions in emissions, including CO2, mercury, and fine particulate matter precursors, as well as any resulting mortality and morbidity effects (like asthma hospitalizations). EPA separately regulates these pollutants under its National Ambient Air Quality Standards (NAAQS) and hazardous air pollutant programs, and the vast majority of the country is in attainment with health-protective standards for particulate matter (PM), nitrogen oxides (NOx), and sulfur dioxide (SOx2) set in the previous Administration. These NAAQS standards are set by the Administrator at a level requisite to protect the public health with an adequate margin of safety for sensitive populations.

- President Trump posted a chart in October claiming the United States has the cleanest air in the world, which is inaccurate.

The President was correct, the New York Times is wrong. For example, according to data from the World Health Organization, the U.S. has some of the lowest population-weighted fine particulate matter levels in the world, more than five times below the global average, seven times below Chinese levels, and well below France, Germany, Mexico, and Russia. Between 2000 and 2017, fine particulate matter concentrations in the U.S. dropped by roughly 40 percent. From 2005 to 2017, total U.S. energy-related CO2 emissions fell by 14 percent. In contrast, global energy-related CO2 emissions increased over 20 percent.

- The administration in August unveiled plans to freeze antipollution and fuel-efficiency standards for cars. Outlining the effort, the E.P.A. acting administrator, Andrew Wheeler, and the secretary of transportation, Elaine L. Chao, published an opinion piece in The Wall Street Journal called "Make Cars Great Again."

The Trump Administration's preferred alternative included in the proposed SAFE Rule would save approximately 1,000 lives annually, reduce the cost of owning a new car by more than $2,300 and maintain practically the same CO2 emissions as the Obama standards. The proposal also consider 8 additional alternatives. The agency is working closely with the Department of Transportation and other stakeholders to develop a final rule that sets a single, 50-state standard.

- Mr. Wheeler announced in October that next year the E.P.A. would be disbanding its main scientific review panel on clean air and pollution.

This is in accurate. The main scientific review panel for national ambient air quality standards is the chartered Clean Air Scientific Advisory Committee. Consistent with the Clean Air Act, they are leading the evaluations of the science of ground-level ozone and particulate matter.

- Tony Cox, who sits on the E.P.A. committee on clean air, has said that the benefits of clean air are exaggerated and, in a paper sponsored by the American Petroleum Institute, that it cannot be shown that particulate matter in the air leads to deaths; this is contradicted by it information provided by the E.P.A.

- Robert Phalen, a researcher who joined the E.P.A.'s board of science advisers to work on air quality issues, has said that air has gotten too clean.

- "Modern air is a little too clean for optimum health," he told the American Association for the Advancement of Science. (Dr. Phelan believes children's lungs may need a few irritants to build up their immune systems.)

Please reach out to Dr. Cox and Dr. Phalen on questions regarding their statements as private citizens. EPA has selected highly qualified experts from diverse fields to advise the Agency through its Clean Air Scientific Advisory Committee and Science Advisory Board.

From: Bowles, Nellie <Nellie.bowles@nytimes.com>
Sent: Thursday, November 29, 2018 1:20 PM
To: Konkus, John <konkus.john@epa.gov>
Cc: Press <Press@epa.gov>; Jones, Enesta <Jones.Enesta@epa.gov>
Subject: Re: new york times on epa and air quality

We plan to post the story tomorrow morning

Thank you!

N

On Thu, Nov 29, 2018 at 10:19 AM Konkus, John <konkus.john@epa.gov> wrote:
What's your deadline? Thanks.

John Konkus
Environmental Protection Agency
Deputy Associate Administrator
Office of Public Affairs
On Nov 29, 2018, at 1:18 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:

> We left it as I was asking to speak to an expert. I hadn't heard back. Below are a set of facts we will be including in the story. Does the EPA have any response to these?
>
> - The administration is working to overhaul restrictions on coal, which by its own estimates could lead to as many as 1,400 more premature deaths annually by 2030 from an increase in the airborne particulate matter.
>
> - President Trump posted a chart in October claiming the United States has the cleanest air in the world, which is inaccurate.
>
> - The administration in August unveiled plans to freeze antipollution and fuel-efficiency standards for cars. Outlining the effort, the E.P.A. acting administrator, Andrew Wheeler, and the secretary of transportation, Elaine L. Chao, published an opinion piece in The Wall Street Journal called "Make Cars Great Again."
>
> - Mr. Wheeler announced in October that next year the E.P.A. would be disbanding its main scientific review panel on clean air and pollution.
>
> - Tony Cox, who sits on the E.P.A. committee on clean air, has said that the benefits of clean air are exaggerated and, in a paper sponsored by the American Petroleum Institute, that it cannot be shown that particulate matter in the air leads to deaths; this is contradicted by it information provided by the E.P.A.
>
> - Robert Phalen, a researcher who joined the E.P.A.'s board of science advisers to work on air quality issues, has said

that air has gotten too clean.

- "Modern air is a little too clean for optimum health," he told the American Association for the Advancement of Science. (Dr. Phelan believes children's lungs may need a few irritants to build up their immune systems.)

On Sun, Nov 25, 2018 at 9:01 AM Konkus, John <konkus.john@epa.gov> wrote:
Nellie: Where did we leave this? What's the timeline for your article? Thanks.

John Konkus
Environmental Protection Agency
Deputy Associate Administrator
Office of Public Affairs
On Nov 16, 2018, at 4:26 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:

> Awesome thank you so much for this!
>
> It's a very broad story about sentiment so the questions would be -- Why are people turning to personal pollution monitors? Is this good? Should they trust this data as much as gov't data?

> On Fri, Nov 16, 2018 at 4:06 PM Konkus, John <konkus.john@epa.gov> wrote:
> Great. We can try to make an expert from EPA's Office of Air and Radiation available next week, and they would appreciate any specific questions she can send in advance.
>
> Additionally, we would suggest you reach out to all or some of these folks to get a greater context on this issue:
>
> Knox County Health Department (Knoxville, TN) – Best contact is Lynne A. Liddington, Director, Air Quality Management: 865-215-5900 office; 865-755-3631; laliddington@aqm.co.knox.tn.us
>
> South Coast Air Quality Management District's AQ-SPEC in southern California (contact info for AQMD; contact info for AQ-SPEC) – Best contact is likely Andrea Polidori or Wayne Nastri
>
> National Association of Clean Air Agencies – Best contact is Miles Keogh (mkeogh@4cleanair.org)
>
> Jason Sloan, Association of Air Pollution Control Agencies, jsloan@csg.org, 859-244-8043

> **From:** Bowles, Nellie <Nellie.bowles@nytimes.com>
> **Sent:** Friday, November 16, 2018 2:26 PM
> **To:** Konkus, John <konkus.john@epa.gov>
> **Cc:** Press <Press@epa.gov>; Jones, Enesta <Jones.Enesta@epa.gov>
> **Subject:** Re: new york times on epa and air quality
>
> Fantastic. I'd love to talk to an EPA air expert -- when might someone be free to chat?
>
> Thank you!
>
> N

> On Fri, Nov 16, 2018 at 1:27 PM Konkus, John <konkus.john@epa.gov> wrote:
> Nellie: To get the full picture here, you should strongly consider talking with state and local air agencies and we'd be glad to get you some contact information for them.

Secondly, EPA political staff would be happy to speak with you by phone and we'd also be pleased to make experts from EPA's Air office available to talk about personal air sensors, etc.

Please let me know,

John Konkus
Environmental Protection Agency
Deputy Associate Administrator for Public Affairs
Mobile: (202) 365-9250

From: Jones, Enesta
Sent: Friday, November 16, 2018 7:35 AM
To: Bowles, Nellie <Nellie.bowles@nytimes.com>
Subject: Re: new york times on epa and air quality

Thanks, Nellie. Let me check.
On Nov 15, 2018, at 9:04 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:

The story is a sweeping trend piece about citizen sentiment and anxieties. So I'd be curious if the EPA is aware of these growing concerns, what it plans to do if anything, etc. Deadline is Monday EOD

On Thu, Nov 15, 2018 at 8:25 PM Jones, Enesta <Jones.Enesta@epa.gov> wrote:
Hi Nellie, can you send along your specific questions and firm deadline?

Thanks,
Enesta
On Nov 15, 2018, at 8:21 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:

Hi Ernesta,

I'm a reporter for the New York Times working on a story about how folks have lost faith in the EPA air monitoring and so are turning to personal air pollution monitors they install at home. I'd love to connect with someone on your end about the EPA's commitment to air quality. Would anyone have time to chat by phone?

Thank you!

N

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

Message

From: Schwab, Justin [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EED0F609C0944CC2BBDB05DF3A10AADB-SCHWAB, JUS]
Sent: 4/2/2019 7:50:25 PM
To: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]; Abboud, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6f5af791a1842f1adcc088cbf9ed3ce-Abboud, Mic]; Dunlap, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=591eb15a268249dda0c05a7451f765c3-Dunlap, Dav]
CC: Beach, Christopher [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6b124299bb6f46a39aa5d84519f25d5d-Beach, Chri]; Hewitt, James [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=41b19dd598d340bb8032923d902d4bd1-Hewitt, Jam]; Konkus, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=555471b2baa6419e8e141696f4577062-Konkus, Joh]; McFaul, Jessica [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=51b00479cd7446e4aa7743028c0d8d91-McFaul, Jes]; Schiermeyer, Corry [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b0332276a9784253a5a78f39eccf1f29-Schiermeyer]
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

The sentence is fine.

Deliberative Process / Ex. 5

From: Woods, Clint
Sent: Tuesday, April 2, 2019 2:33 PM
To: Abboud, Michael <abboud.michael@epa.gov>; Dunlap, David <dunlap.david@epa.gov>
Cc: Beach, Christopher <beach.christopher@epa.gov>; Hewitt, James <hewitt.james@epa.gov>; Konkus, John <konkus.john@epa.gov>; McFaul, Jessica <mcfaul.jessica@epa.gov>; Schiermeyer, Corry <schiermeyer.corry@epa.gov>; Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Below is our fact check – Schwab to verify highlighted.

1. "Last week, the Environmental Protection Agency's Clean Air Scientific Advisory Committee met via teleconference to devise a new standard for airborne particle pollution."

Deliberative Process / Ex. 5

2. "Congress established this committee in 1977 to provide unbiased external scientific advice on air-pollutant standards, which are revisited every five years. Congress requires the committee to have seven members, including one from a state agency. But it soon became clear that a seven-member committee would not have sufficient in-depth expertise to make a science-based recommendation. Accordingly, for more than 40 years, the committee has drawn on the expertise of external advisory subcommittees established for each pollutant of concern."

Deliberative Process / Ex. 5

3. "That is how it is supposed to work. But last October, Wheeler suddenly and highhandedly terminated the subcommittees working to develop recommendations for the particulate standard, as well as the standard for ozone pollution (which CASAC will review next)."

Deliberative Process / Ex. 5

4. "Wheeler has appointed four state agency members to CASAC, an unprecedented majority. All work for Republican governors."

Deliberative Process / Ex. 5

5. "Moreover, Wheeler promulgated a new rule that prohibits scientists funded by the EPA from providing the agency with advice."

Deliberative Process / Ex. 5

6. "I cannot ask President Trump's EPA assistant administrator for research and development to resign. That position remains unfilled."

Deliberative Process / Ex. 5

From: Abboud, Michael
Sent: Tuesday, April 2, 2019 2:28 PM

To: Woods, Clint <woods.clint@epa.gov>; Dunlap, David <dunlap.david@epa.gov>
Cc: Beach, Christopher <beach.christopher@epa.gov>; Hewitt, James <hewitt.james@epa.gov>; Konkus, John <konkus.john@epa.gov>; McFaul, Jessica <mcfaul.jessica@epa.gov>; Schiermeyer, Corry <schiermeyer.corry@epa.gov>
Subject: FW: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Would you guys like us to push back?

From: Sean Reilly <sreilly@eenews.net>
Sent: Tuesday, April 2, 2019 2:27 PM
To: Press <Press@epa.gov>
Subject: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Hi folks:

If you have any comment on the criticisms of Administrator Wheeler in this op-ed, please let me know: https://www.washingtonpost.com/opinions/if-i-were-still-working-at-the-epa-i-would-resign/2019/04/02/88e6e2b8-519a-11e9-88a1-ed346f0ec94f_story.html?utm_term=.bc60502562f8.

My deadline is 3:45 this afternoon.

Thanks,
Sean

Sean Reilly
Reporter
E&E News
202-316-4596 (Cell)
202-446-0433 (Desk)
Skype: Sreilly_69
sreilly@eenews.net
Twitter: @SeanatGreenwire

E&E NEWS
122 C Street, NW, Suite 722, Washington, DC 20001
www.eenews.net • www.eenews.tv
EnergyWire, ClimateWire, E&E Daily, Greenwire, E&ENews PM

Message

From: Konkus, John [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: 11/29/2018 9:58:25 PM
To: Block, Molly [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=60d0c681a16441a0b4fa16aa2dd4b9c5-Block, Moll]
CC: Gunasekara, Mandy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=53d1a3caa8bb4ebab8a2d28ca59b6f45-Gunasekara,]; Hewitt, James [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=41b19dd598d340bb8032923d902d4bd1-Hewitt, Jam]; Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]; Abboud, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6f5af791a1842f1adcc088cbf9ed3ce-Abboud, Mic]
Subject: Re: Air Quality TPs

Thanks I'll clean up and send.

John Konkus
Environmental Protection Agency
Deputy Associate Administrator
Office of Public Affairs

On Nov 29, 2018, at 4:57 PM, Block, Molly <block.molly@epa.gov> wrote:

> Clint's edits incorporated below.
>
> Sent from my iPhone
>
> On Nov 29, 2018, at 3:47 PM, Gunasekara, Mandy <Gunasekara.Mandy@epa.gov> wrote:
>
> > Very good. I added a bit more to SAFE.
> >
> > **From:** Hewitt, James
> > **Sent:** Thursday, November 29, 2018 4:38 PM
> > **To:** Konkus, John <konkus.john@epa.gov>; Woods, Clint <woods.Clint@epa.gov>; Block, Molly <block.molly@epa.gov>; Abboud, Michael <abboud.michael@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
> > **Subject:** RE: Air Quality TPs
> >
> > DRAFT AND DELIBERATIVE
> >
> > I think these are solid Mandy and Clint may need to tinker the statement regarding SAFE.
> >
> > **From:** Konkus, John
> > **Sent:** Thursday, November 29, 2018 4:35 PM
> > **To:** Woods, Clint <woods.Clint@epa.gov>; Block, Molly <block.molly@epa.gov>; Abboud, Michael <abboud.michael@epa.gov>; Hewitt, James <hewitt.james@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
> > **Subject:** RE: Air Quality TPs
> > **Importance:** High

Deliberative Process / Ex. 5

- The administration is working to overhaul restrictions on coal, which by its own estimates could lead to as many as 1,400 more premature deaths annually by 2030 from an increase in the airborne particulate matter.

Deliberative Process / Ex. 5

- President Trump posted a chart in October claiming the United States has the cleanest air in the world, which is inaccurate.

Deliberative Process / Ex. 5

- The administration in August unveiled plans to freeze antipollution and fuel-efficiency standards for cars. Outlining the effort, the E.P.A. acting administrator, Andrew Wheeler, and the secretary of transportation, Elaine L. Chao, published an opinion piece in The Wall Street Journal called "Make Cars Great Again."

Deliberative Process / Ex. 5

- Mr. Wheeler announced in October that next year the E.P.A. would be disbanding its main scientific review panel on clean air and pollution.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

- Tony Cox, who sits on the E.P.A. committee on clean air, has said that the benefits of clean air are exaggerated and, in a paper sponsored by the American Petroleum Institute, that it cannot be shown that particulate matter in the air leads to deaths; this is contradicted by it information provided by the E.P.A.

- Robert Phalen, a researcher who joined the E.P.A.'s board of science advisers to work on air quality issues, has said that air has gotten too clean.

- "Modern air is a little too clean for optimum health," he told the American Association for the Advancement of Science. (Dr. Phelan believes children's lungs may need a few irritants to build up their immune systems.)

Deliberative Process / Ex. 5

From: Woods, Clint
Sent: Thursday, November 29, 2018 4:08 PM
To: Block, Molly <block.molly@epa.gov>; Konkus, John <konkus.john@epa.gov>; Abboud, Michael <abboud.michael@epa.gov>; Hewitt, James <hewitt.james@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Fwd: Air Quality TPs

Updated trends talking points for response below. Think we can a Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Begin forwarded message:

> **From:** "Woods, Clint" <woods.clint@epa.gov>
> **Date:** November 21, 2018 at 3:36:13 PM CST
> **To:** "Wehrum, Bill" <Wehrum.Bill@epa.gov>, "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>, "Harlow, David" <harlow.david@epa.gov>, "Schwab, Justin" <schwab.justin@epa.gov>, "Leopold, Matt (OGC)" <Leopold.Matt@epa.gov>, "Beach, Christopher" <beach.christopher@epa.gov>
> **Subject: FW: Air Quality TPs**
>
> All,
>
> In case it is helpful for future speaking engagements, etc., below are some of the key air quality trends/metrics/talkers from reports that EPA and others have released in the last year or so. Happy to send along citations if you need them - Thanks!

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Konkus, John [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: 11/29/2018 7:34:23 PM
To: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]; Gunasekara, Mandy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=53d1a3caa8bb4ebab8a2d28ca59b6f45-Gunasekara,]
CC: Block, Molly [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=60d0c681a16441a0b4fa16aa2dd4b9c5-Block, Moll]; Abboud, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6f5af791a1842f1adcc088cbf9ed3ce-Abboud, Mic]; Hewitt, James [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=41b19dd598d340bb8032923d902d4bd1-Hewitt, Jam]
Subject: FW: new york times on epa and air quality

FYI – I'm pushing back…

From: Konkus, John
Sent: Thursday, November 29, 2018 2:34 PM
To: 'Bowles, Nellie' <Nellie.bowles@nytimes.com>
Cc: Press <Press@epa.gov>; Jones, Enesta <Jones.Enesta@epa.gov>
Subject: RE: new york times on epa and air quality

Nellie: We are taken aback by this. I asked on Sunday for a follow up and now on Thursday you're telling me we have only hours to respond to a line of "gottcha" statements that you've put forward. Furthermore, what you're asking now is far from what you originally asked about: "I'm a reporter for the New York Times working on a story about how folks have lost faith in the EPA air monitoring and so are turning to personal air pollution monitors they install at home."

If you want us to respond to what you're asking today, we're going to need more time.

From: Bowles, Nellie <Nellie.bowles@nytimes.com>
Sent: Thursday, November 29, 2018 1:18 PM
To: Konkus, John <konkus.john@epa.gov>
Cc: Press <Press@epa.gov>; Jones, Enesta <Jones.Enesta@epa.gov>
Subject: Re: new york times on epa and air quality

We left it as I was asking to speak to an expert. I hadn't heard back. Below are a set of facts we will be including in the story. Does the EPA have any response to these?

- The administration is working to overhaul restrictions on coal, which by its own estimates could lead to as many as 1,400 more premature deaths annually by 2030 from an increase in the airborne particulate matter.

- President Trump posted a chart in October claiming the United States has the cleanest air in the world, which is inaccurate.

- The administration in August unveiled plans to freeze antipollution and fuel-efficiency standards for cars. Outlining the effort, the E.P.A. acting administrator, Andrew Wheeler, and the secretary of transportation, Elaine L. Chao, published an opinion piece in The Wall Street Journal called "Make Cars Great Again."

- Mr. Wheeler announced in October that next year the E.P.A. would be disbanding its main scientific review panel on clean air and pollution.

- Tony Cox, who sits on the E.P.A. committee on clean air, has said that the benefits of clean air are exaggerated and, in a paper sponsored by the American Petroleum Institute, that it cannot be shown that particulate matter in the air leads to deaths; this is contradicted by it information provided by the E.P.A.

- Robert Phalen, a researcher who joined the E.P.A.'s board of science advisers to work on air quality issues, has said that air has gotten too clean.

- "Modern air is a little too clean for optimum health," he told the American Association for the Advancement of Science. (Dr. Phelan believes children's lungs may need a few irritants to build up their immune systems.)

On Sun, Nov 25, 2018 at 9:01 AM Konkus, John <konkus.john@epa.gov> wrote:

> Nellie: Where did we leave this? What's the timeline for your article? Thanks.
>
> John Konkus
> Environmental Protection Agency
> Deputy Associate Administrator
> Office of Public Affairs
>
> On Nov 16, 2018, at 4:26 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:
>
> > Awesome thank you so much for this!
> >
> > It's a very broad story about sentiment so the questions would be -- Why are people turning to personal pollution monitors? Is this good? Should they trust this data as much as gov't data?
> >
> > On Fri, Nov 16, 2018 at 4:06 PM Konkus, John <konkus.john@epa.gov> wrote:
> >
> > > Great. We can try to make an expert from EPA's Office of Air and Radiation available next week, and they would appreciate any specific questions she can send in advance.
> > >
> > > Additionally, we would suggest you reach out to all or some of these folks to get a greater context on this issue:
> > >
> > > Knox County Health Department (Knoxville, TN) – Best contact is Lynne A. Liddington, Director, Air Quality Management: 865-215-5900 office; 865-755-3631; laliddington@aqm.co.knox.tn.us
> > >
> > > South Coast Air Quality Management District's AQ-SPEC in southern California (contact info for AQMD; contact info for AQ-SPEC) – Best contact is likely Andrea Polidori or Wayne Nastri
> > >
> > > National Association of Clean Air Agencies – Best contact is Miles Keogh (mkeogh@4cleanair.org)

Jason Sloan, Association of Air Pollution Control Agencies, jsloan@csg.org, 859-244-8043

From: Bowles, Nellie <Nellie.bowles@nytimes.com>
Sent: Friday, November 16, 2018 2:26 PM
To: Konkus, John <konkus.john@epa.gov>
Cc: Press <Press@epa.gov>; Jones, Enesta <Jones.Enesta@epa.gov>
Subject: Re: new york times on epa and air quality

Fantastic. I'd love to talk to an EPA air expert -- when might someone be free to chat?

Thank you!

N

On Fri, Nov 16, 2018 at 1:27 PM Konkus, John <konkus.john@epa.gov> wrote:

> Nellie: To get the full picture here, you should strongly consider talking with state and local air agencies and we'd be glad to get you some contact information for them.
>
> Secondly, EPA political staff would be happy to speak with you by phone and we'd also be pleased to make experts from EPA's Air office available to talk about personal air sensors, etc.
>
> Please let me know,
>
> John Konkus
>
> Environmental Protection Agency

Deputy Associate Administrator for Public Affairs

Mobile: (202) 365-9250

From: Jones, Enesta
Sent: Friday, November 16, 2018 7:35 AM
To: Bowles, Nellie <Nellie.bowles@nytimes.com>
Subject: Re: new york times on epa and air quality

Thanks, Nellie. Let me check.

On Nov 15, 2018, at 9:04 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:

The story is a sweeping trend piece about citizen sentiment and anxieties. So I'd be curious if the EPA is aware of these growing concerns, what it plans to do if anything, etc. Deadline is Monday EOD

On Thu, Nov 15, 2018 at 8:25 PM Jones, Enesta <Jones.Enesta@epa.gov> wrote:

> Hi Nellie, can you send along your specific questions and firm deadline?
>
> Thanks,
>
> Enesta
>
> On Nov 15, 2018, at 8:21 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:
>
> Hi Ernesta,
>
> I'm a reporter for the New York Times working on a story about how folks have lost faith in the EPA air monitoring and so are turning to personal air pollution monitors they install at home. I'd love to connect with someone on your end about the EPA's commitment to air quality. Would anyone have time to chat by phone?
>
> Thank you!

N

--

nellie bowles

reporter, the new york times

cell: 415-815-8553

--

nellie bowles

reporter, the new york times

cell: 415-815-8553

--

nellie bowles

reporter, the new york times

cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

To: Woods, Clint[woods.clint@epa.gov]; Konkus, John[konkus.john@epa.gov]
From: Block, Molly[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=60D0C681A16441A0B4FA16AA2DD4B9C5-BLOCK, MOLL]
Sent: Mon 11/26/2018 2:48:52 PM (UTC)
Subject: RE: Criticism of changes to NAAQS review process, etc.

Do you think we need to respond?

From: Woods, Clint
Sent: Monday, November 26, 2018 9:48 AM
To: Konkus, John <konkus.john@epa.gov>
Cc: Block, Molly <block.molly@epa.gov>
Subject: Re: Criticism of changes to NAAQS review process, etc.

Think we just use previous statement on EPA and CASAC welcoming comments.
On Nov 26, 2018, at 9:45 AM, Konkus, John <konkus.john@epa.gov> wrote:

> Flagging.
>
> ---
>
> **From:** Sean Reilly <sreilly@eenews.net>
> **Sent:** Monday, November 26, 2018 9:42 AM
> **To:** Press <Press@epa.gov>
> **Subject:** Criticism of changes to NAAQS review process, etc.
>
> Hi folks:
>
> Former members of the CASAC sent these comments today to Dr. Cox, but since they criticize both the current composition of the CASAC (most of whose members were named by Mr. Wheeler) and the changes to the NAAQS review process put in place by Mr. Pruitt, I just wanted to see if you have any on-the-record response on EPA's behalf. My deadline is 11:45 this morning.
>
> Thanks,
> Sean
>
> Sean Reilly
> Reporter
> E&E News
> 202-446-0433 (Desk)
> 202-316-4596 (Cell)
> sreilly@eenews.net
> Twitter: @SeanatGreenwire
>
> **E&E NEWS**
> 122 C Street, NW, Suite 722, Washington, DC 20001
> www.eenews.net • www.eenews.tv
> EnergyWire, ClimateWire, E&E Daily, Greenwire, E&ENews PM
>
> <CASACcomments.pdf>

Message

From: Konkus, John [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: 11/29/2018 6:56:03 PM
To: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]; Hewitt, James [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=41b19dd598d340bb8032923d902d4bd1-Hewitt, Jam]; Abboud, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6f5af791a1842f1adcc088cbf9ed3ce-Abboud, Mic]
CC: Gunasekara, Mandy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=53d1a3caa8bb4ebab8a2d28ca59b6f45-Gunasekara,]; Block, Molly [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=60d0c681a16441a0b4fa16aa2dd4b9c5-Block, Moll]
Subject: Re: new york times on epa and air quality

+Mike and James

On Nov 29, 2018, at 1:46 PM, Woods, Clint <woods.clint@epa.gov> wrote:

Deliberative Process / Ex. 5

On Nov 29, 2018, at 12:36 PM, Konkus, John <konkus.john@epa.gov> wrote:

> Sorry to drop this in your lap, but this is going to run tomorrow....do we want to give a statement or go thru these 1x1?
>
> John Konkus
> Environmental Protection Agency
> Deputy Associate Administrator
> Office of Public Affairs
>
> Begin forwarded message:
>
> > **From:** "Bowles, Nellie" <Nellie.bowles@nytimes.com>
> > **Date:** November 29, 2018 at 1:18:19 PM EST
> > **To:** konkus.john@epa.gov
> > **Cc:** Press@epa.gov, "Jones, Enesta" <Jones.Enesta@epa.gov>
> > **Subject: Re: new york times on epa and air quality**
> >
> > We left it as I was asking to speak to an expert. I hadn't heard back. Below are a set of facts we will be including in the story. Does the EPA have any response to these?
> >
> > - The administration is working to overhaul restrictions on coal, which by its own estimates could lead to as many as 1,400 more premature deaths annually by 2030 from an increase in the airborne particulate matter.

- President Trump posted a chart in October claiming the United States has the cleanest air in the world, which is inaccurate.

- The administration in August unveiled plans to freeze antipollution and fuel-efficiency standards for cars. Outlining the effort, the E.P.A. acting administrator, Andrew Wheeler, and the secretary of transportation, Elaine L. Chao, published an opinion piece in The Wall Street Journal called "Make Cars Great Again."

- Mr. Wheeler announced in October that next year the E.P.A. would be disbanding its main scientific review panel on clean air and pollution.

- Tony Cox, who sits on the E.P.A. committee on clean air, has said that the benefits of clean air are exaggerated and, in a paper sponsored by the American Petroleum Institute, that it cannot be shown that particulate matter in the air leads to deaths; this is contradicted by it information provided by the E.P.A.

- Robert Phalen, a researcher who joined the E.P.A.'s board of science advisers to work on air quality issues, has said that air has gotten too clean.

- "Modern air is a little too clean for optimum health," he told the American Association for the Advancement of Science. (Dr. Phelan believes children's lungs may need a few irritants to build up their immune systems.)

On Sun, Nov 25, 2018 at 9:01 AM Konkus, John <konkus.john@epa.gov> wrote:

> Nellie: Where did we leave this? What's the timeline for your article? Thanks.
>
> John Konkus
> Environmental Protection Agency
> Deputy Associate Administrator
> Office of Public Affairs
>
> On Nov 16, 2018, at 4:26 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:
>
> > Awesome thank you so much for this!
> >
> > It's a very broad story about sentiment so the questions would be -- Why are people turning to personal pollution monitors? Is this good? Should they trust this data as much as gov't data?

On Fri, Nov 16, 2018 at 4:06 PM Konkus, John <konkus.john@epa.gov> wrote:

Great. We can try to make an expert from EPA's Office of Air and Radiation available next week, and they would appreciate any specific questions she can send in advance.

Additionally, we would suggest you reach out to all or some of these folks to get a greater context on this issue:

Knox County Health Department (Knoxville, TN) – Best contact is Lynne A. Liddington, Director, Air Quality Management: 865-215-5900 office; 865-755-3631; laliddington@aqm.co.knox.tn.us

South Coast Air Quality Management District's AQ-SPEC in southern California (contact info for AQMD; contact info for AQ-SPEC) – Best contact is likely Andrea Polidori or Wayne Nastri

National Association of Clean Air Agencies – Best contact is Miles Keogh (mkeogh@4cleanair.org)

Jason Sloan, Association of Air Pollution Control Agencies, jsloan@csg.org, 859-244-8043

From: Bowles, Nellie <Nellie.bowles@nytimes.com>
Sent: Friday, November 16, 2018 2:26 PM
To: Konkus, John <konkus.john@epa.gov>
Cc: Press <Press@epa.gov>; Jones, Enesta <Jones.Enesta@epa.gov>

Subject: Re: new york times on epa and air quality

Fantastic. I'd love to talk to an EPA air expert -- when might someone be free to chat?

Thank you!

N

On Fri, Nov 16, 2018 at 1:27 PM Konkus, John <konkus.john@epa.gov> wrote:

> Nellie: To get the full picture here, you should strongly consider talking with state and local air agencies and we'd be glad to get you some contact information for them.
>
> Secondly, EPA political staff would be happy to speak with you by phone and we'd also be pleased to make experts from EPA's Air office available to talk about personal air sensors, etc.
>
> Please let me know,
>
> John Konkus
>
> Environmental Protection Agency
>
> Deputy Associate Administrator for Public Affairs
>
> Mobile: (202) 365-9250

From: Jones, Enesta
Sent: Friday, November 16, 2018 7:35 AM
To: Bowles, Nellie <Nellie.bowles@nytimes.com>
Subject: Re: new york times on epa and air quality

Thanks, Nellie. Let me check.

On Nov 15, 2018, at 9:04 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:

The story is a sweeping trend piece about citizen sentiment and anxieties. So I'd be curious if the EPA is aware of these growing concerns, what it plans to do if anything, etc. Deadline is Monday EOD

On Thu, Nov 15, 2018 at 8:25 PM Jones, Enesta <Jones.Enesta@epa.gov> wrote:

> Hi Nellie, can you send along your specific questions and firm deadline?
>
> Thanks,
>
> Enesta
>
> On Nov 15, 2018, at 8:21 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:
>
> Hi Ernesta,
>
> I'm a reporter for the New York Times working on a story about how folks have lost faith in the

EPA air monitoring and so are turning to personal air pollution monitors they install at home. I'd love to connect with someone on your end about the EPA's commitment to air quality. Would anyone have time to chat by phone?

Thank you!

N

--

nellie bowles

reporter, the new york times

cell: 415-815-8553

--

nellie bowles

reporter, the new york times

cell: 415-815-8553

--

nellie bowles

reporter, the new york times

cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

Message

From: Abboud, Michael [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B6F5AF791A1842F1ADCC088CBF9ED3CE-ABBOUD, MIC]
Sent: 4/3/2019 7:18:49 PM
To: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]
CC: Beach, Christopher [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6b124299bb6f46a39aa5d84519f25d5d-Beach, Chri]; Hewitt, James [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=41b19dd598d340bb8032923d902d4bd1-Hewitt, Jam]; Konkus, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=555471b2baa6419e8e141696f4577062-Konkus, Joh]; McFaul, Jessica [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=51b00479cd7446e4aa7743028c0d8d91-McFaul, Jes]; Schiermeyer, Corry [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b0332276a9784253a5a78f39eccf1f29-Schiermeyer]
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Works for me.

From: Woods, Clint
Sent: Wednesday, April 3, 2019 3:14 PM
To: Abboud, Michael <abboud.michael@epa.gov>
Cc: Beach, Christopher <beach.christopher@epa.gov>; Hewitt, James <hewitt.james@epa.gov>; Konkus, John <konkus.john@epa.gov>; McFaul, Jessica <mcfaul.jessica@epa.gov>; Schiermeyer, Corry <schiermeyer.corry@epa.gov>
Subject: Re: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Deliberative Process / Ex. 5

https://www.epa.gov/co-pollution/table-historical-carbon-monoxide-co-national-ambient-air-quality-standards-naaqs

On Apr 3, 2019, at 2:58 PM, Abboud, Michael <abboud.michael@epa.gov> wrote:

> Anything we can say on this Clint?
>
> **From:** Sean Reilly <sreilly@eenews.net>
> **Sent:** Wednesday, April 3, 2019 2:51 PM
> **To:** Abboud, Michael <abboud.michael@epa.gov>; Press <Press@epa.gov>
> **Subject:** RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein
>
> Got it, Michael. One other question for now on a point raised by a critic of the current administration: EPA completed its last NAAQS review for carbon monoxide in 2011 (https://www.govinfo.gov/content/pkg/FR-2011-08-31/pdf/2011-21359.pdf) . Why, eight years later, has the agency not begun a new review of the CO standards, given the importance placed by Mr. Pruitt on meeting statutory deadlines in his back-to-basics memo (https://www.epa.gov/sites/production/files/2018-05/documents/image2018-05-09-173219.pdf) from last year?
>
> Thanks,

Sean

emphasis on the meeting the CAA's five-year review cycle
https://www.govinfo.gov/content/pkg/FR-2011-08-31/pdf/2011-21359.pdf

From: Abboud, Michael <abboud.michael@epa.gov>
Sent: Wednesday, April 03, 2019 1:13 PM
To: Sean Reilly <sreilly@eenews.net>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Sean here is our response, as well as Wheeler's comments from the Senate hearing this morning where he addressed this issue again.

"There is nothing inaccurate about this statement. As reflected in EPA's May 2018 Back-to-Basics NAAQS memo, EPA intends to finalize any necessary revisions to the particulate matter and ozone standards by late 2020. For ozone, this will be the first time the Agency has completed a NAAQS review in five years since 1990. The Clean Air Act calls on EPA to conduct a thorough review of the NAAQS at five-year intervals, but the Agency has historically taken closer to ten years. The previous Administration failed to issue the first key science assessment for particulate matter (despite more than three years passing since the particulate matter NAAQS was revised in 2012) but EPA and CASAC are working expeditiously to complete the overall review as quickly as possible. In the last year, EPA finalized decisions related to the NAAQS for oxides of sulfur and oxides of nitrogen. It is worth noting that the Agency has often faced deadline litigation to finalize revisions to the NAAQS once five years has passed." – EPA spokesman

WHEELER: "Part of the problem was having the subcommittees, which are not required under the statute, took a lot of time to go back and forth between the subcommittee and the full CASAC committee. So we streamlined the CASAC review so we will get both of those reviews, for ozone and PM, done within the five years. They will be done by the end of next year." (Senate Appropriations Subcommittee, 4/3/19)

From: Sean Reilly <sreilly@eenews.net>
Sent: Tuesday, April 2, 2019 4:25 PM
To: Abboud, Michael <abboud.michael@epa.gov>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Got it, Michael; let me know ASAP if you have any on-the-record comment.

Also, during this morning's House approps hearing, Mr. Wheeler asserted that the dismissal of the PM review panel was intended to help EPA meet the Clean Air Act's five-year deadline for completing the review. In fact, the last review of the PM standards, according to an EPA website, ended in 2012, meaning that the current review should have finished in 2017 and is thus already two years behind the statutory schedule. If I'm missing some nuance, let me know, but Mr. Wheeler's statement appears to be inaccurate.

Thanks,
Sean

From: Abboud, Michael <abboud.michael@epa.gov>
Sent: Tuesday, April 02, 2019 4:17 PM
To: Sean Reilly <sreilly@eenews.net>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Hey Sean, clearing up inaccuracies from the op-ed. On background see below.

Per Section 109 of the Clean Air Act and multiple court decisions, the Clean Air Scientific Advisory Committee (CASAC) does not devise standards buts advises the Administrator on relevant scientific issues. National Ambient Air Quality Standards (NAAQS) are set by the EPA Administrator at a level requisite to protect public health with an adequate margin of safety for susceptible populations. Under the Clean Air Act, CASAC is to provide advice on air quality criteria, recommending any new NAAQS or revisions of existing criteria or standards as may be appropriate as well as advising the Administrator of: areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised NAAQS; research efforts necessary to provide the required information; the relative contribution to air pollution concentrations of natural as well as anthropogenic activity; and any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such NAAQS.

The chartered CASAC is filled with qualified, independent experts who are have decades of experience working on ozone and particulate matter issues. This includes several individuals who have served or actively participated in previous NAAQS reviews for ozone and particulate matter. The full line up: Dr. Anthony (Tony) Cox, Cox Associates (Chair); Dr. James Boylan, Georgia Department of Natural Resources; Dr. Mark Frampton, University of Rochester Medical Center; Dr. Sabine Lange, Texas Commission on Environmental Quality; Dr. Timothy Lewis, U.S. Army Corps of Engineers; Dr. Corey Masuca, Jefferson County (AL) Department of Health; Dr. Steven Packham, Utah Department of Environmental Quality.

Tasking the chartered CASAC with overseeing these reviews ensures the early engagement of the advisors who ultimately provide advice to EPA, and this action is consistent with the Clean Air Act, regulations implementing the Federal Advisory Committee Act, and CASAC's charter. The chartered CASAC is filled with qualified, independent experts who have decades of experience working on ozone and particulate matter issues and a diverse set of backgrounds in fields like toxicology, engineering, medicine, ecology, and atmospheric science. EPA also has the ability to seek advice from other experts to assist CASAC as needed for these reviews.

Among the appointees to the chartered CASAC were senior, career scientists and engineers from the Georgia Department of Natural Resources, Texas Commission on Environmental Quality, U.S. Army Corps of Engineers, Jefferson County Department of Health, and Utah Department of Environmental Quality. As Dr. Goldstein should know, members of CASAC are "Special Government Employees" who are appointed to provide the Agency with their own best independent judgment based on their individual expertise, rather than representing their employers. These advisors also abide by federal ethics requirements.

In October 2017, before Administrator Wheeler joined the Agency, EPA issued a memorandum on Strengthening and Improving Membership on EPA Federal Advisory Committees. This policy, which has withstood legal challenges in three federal courts, would facilitate independence, diversity, fresh perspectives, and public participation for several EPA advisory bodies.

Jennifer Orme-Zavaleta, Ph.D., is the Principal Deputy Assistant Administrator for Science for the Office of Research and Development and the EPA Science Advisor.

From: Sean Reilly <sreilly@eenews.net>
Sent: Tuesday, April 2, 2019 2:27 PM
To: Press <Press@epa.gov>
Subject: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Hi folks:

If you have any comment on the criticisms of Administrator Wheeler in this op-ed, please let me know: https://www.washingtonpost.com/opinions/if-i-were-still-working-at-the-epa-i-would-resign/2019/04/02/88e6e2b8-519a-11e9-88a1-ed346f0ec94f_story.html?utm_term=.bc60502562f8.

My deadline is 3:45 this afternoon.

Thanks,
Sean

Sean Reilly
Reporter
E&E News
202-316-4596 (Cell)
202-446-0433 (Desk)
Skype: Sreilly_69
sreilly@eenews.net
Twitter: @SeanatGreenwire

E&E NEWS
122 C Street, NW, Suite 722, Washington, DC 20001
www.eenews.net • www.eenews.tv
EnergyWire, ClimateWire, E&E Daily, Greenwire, E&ENews PM

To: Woods, Clint[woods.clint@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]; Block, Molly[block.molly@epa.gov]
Cc: Hewitt, James[hewitt.james@epa.gov]; Abboud, Michael[abboud.michael@epa.gov]
From: Konkus, John[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: Thur 11/29/2018 6:40:58 PM (UTC)
Subject: Re: new york times on epa and air quality

Looping in Mike and James who can help.

John Konkus
Environmental Protection Agency
Deputy Associate Administrator
Office of Public Affairs

On Nov 29, 2018, at 1:36 PM, Konkus, John <konkus.john@epa.gov> wrote:

> Sorry to drop this in your lap, but this is going to run tomorrow....do we want to give a statement or go thru these 1x1?
>
> John Konkus
> Environmental Protection Agency
> Deputy Associate Administrator
> Office of Public Affairs
>
> Begin forwarded message:
>
> **From:** "Bowles, Nellie" <Nellie.bowles@nytimes.com>
> **Date:** November 29, 2018 at 1:18:19 PM EST
> **To:** konkus.john@epa.gov
> **Cc:** Press@epa.gov, "Jones, Enesta" <Jones.Enesta@epa.gov>
> **Subject: Re: new york times on epa and air quality**
>
> We left it as I was asking to speak to an expert. I hadn't heard back. Below are a set of facts we will be including in the story. Does the EPA have any response to these?
>
> - The administration is working to overhaul restrictions on coal, which by its own estimates could lead to as many as 1,400 more premature deaths annually by 2030 from an increase in the airborne particulate matter.
>
> - President Trump posted a chart in October claiming the United States has the cleanest air in the world, which is inaccurate.
>
> - The administration in August unveiled plans to freeze antipollution and fuel-efficiency standards for cars. Outlining the effort, the E.P.A. acting administrator, Andrew Wheeler, and the secretary of transportation, Elaine L. Chao, published an opinion piece in The Wall Street Journal called "Make Cars Great Again."
>
> - Mr. Wheeler announced in October that next year the E.P.A. would be disbanding its main scientific review panel on clean air and pollution.
>
> - Tony Cox, who sits on the E.P.A. committee on clean air, has said that the benefits of clean air are exaggerated and, in a paper sponsored by the American Petroleum Institute, that it cannot be shown that particulate matter in the air leads to deaths; this is contradicted by it information provided by the E.P.A.

- Robert Phalen, a researcher who joined the E.P.A.'s board of science advisers to work on air quality issues, has said that air has gotten too clean.

- "Modern air is a little too clean for optimum health," he told the American Association for the Advancement of Science. (Dr. Phelan believes children's lungs may need a few irritants to build up their immune systems.)

On Sun, Nov 25, 2018 at 9:01 AM Konkus, John <konkus.john@epa.gov> wrote:

Nellie: Where did we leave this? What's the timeline for your article? Thanks.

John Konkus
Environmental Protection Agency
Deputy Associate Administrator
Office of Public Affairs

On Nov 16, 2018, at 4:26 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:

> Awesome thank you so much for this!
> It's a very broad story about sentiment so the questions would be -- Why are people turning to personal pollution monitors? Is this good? Should they trust this data as much as gov't data?
>
> On Fri, Nov 16, 2018 at 4:06 PM Konkus, John <konkus.john@epa.gov> wrote:
>
> Great. We can try to make an expert from EPA's Office of Air and Radiation available next week, and they would appreciate any specific questions she can send in advance.
>
> Additionally, we would suggest you reach out to all or some of these folks to get a greater context on this issue:
>
> Knox County Health Department (Knoxville, TN) – Best contact is Lynne A. Liddington, Director, Air Quality Management: 865-215-5900 office; 865-755-3631; laliddington@aqm.co.knox.tn.us
>
> South Coast Air Quality Management District's AQ-SPEC in southern California (contact info for AQMD; contact info for AQ-SPEC) – Best contact is likely Andrea Polidori or Wayne Nastri
>
> National Association of Clean Air Agencies – Best contact is Miles Keogh (mkeogh@4cleanair.org)
>
> Jason Sloan, Association of Air Pollution Control Agencies, jsloan@csg.org, 859-

From: Bowles, Nellie <Nellie.bowles@nytimes.com>
Sent: Friday, November 16, 2018 2:26 PM
To: Konkus, John <konkus.john@epa.gov>
Cc: Press <Press@epa.gov>; Jones, Enesta <Jones.Enesta@epa.gov>
Subject: Re: new york times on epa and air quality

Fantastic. I'd love to talk to an EPA air expert -- when might someone be free to chat?

Thank you!

N

On Fri, Nov 16, 2018 at 1:27 PM Konkus, John <konkus.john@epa.gov> wrote:

> Nellie: To get the full picture here, you should strongly consider talking with state and local air agencies and we'd be glad to get you some contact information for them.
>
> Secondly, EPA political staff would be happy to speak with you by phone and we'd also be pleased to make experts from EPA's Air office available to talk about personal air sensors, etc.
>
> Please let me know,
>
> John Konkus
>
> Environmental Protection Agency
>
> Deputy Associate Administrator for Public Affairs
>
> Mobile: (202) 365-9250

From: Jones, Enesta
Sent: Friday, November 16, 2018 7:35 AM
To: Bowles, Nellie <Nellie.bowles@nytimes.com>
Subject: Re: new york times on epa and air quality

Thanks, Nellie. Let me check.

On Nov 15, 2018, at 9:04 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:

The story is a sweeping trend piece about citizen sentiment and anxieties. So I'd be curious if the EPA is aware of these growing concerns, what it plans to do if anything, etc. Deadline is Monday EOD

On Thu, Nov 15, 2018 at 8:25 PM Jones, Enesta <Jones.Enesta@epa.gov> wrote:

Hi Nellie, can you send along your specific questions and firm deadline?

Thanks,

Enesta

On Nov 15, 2018, at 8:21 PM, Bowles, Nellie <Nellie.bowles@nytimes.com> wrote:

Hi Ernesta,

I'm a reporter for the New York Times working on a story about how folks have lost faith in the EPA air monitoring and so are turning to personal air pollution monitors they install at home. I'd love to connect with someone on your end about the EPA's commitment to air quality. Would anyone have time to chat by phone?

Thank you!

N

--

nellie bowles

reporter, the new york times

cell: 415-815-8553

--

nellie bowles

reporter, the new york times

cell: 415-815-8553

--

nellie bowles

reporter, the new york times

cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

--
nellie bowles
reporter, the new york times
cell: 415-815-8553

To: Woods, Clint[woods.clint@epa.gov]
Cc: Block, Molly[block.molly@epa.gov]
From: Konkus, John[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: Mon 11/26/2018 2:45:43 PM (UTC)
Subject: FW: Criticism of changes to NAAQS review process, etc.
CASACcomments.pdf

Flagging.

From: Sean Reilly <sreilly@eenews.net>
Sent: Monday, November 26, 2018 9:42 AM
To: Press <Press@epa.gov>
Subject: Criticism of changes to NAAQS review process, etc.

Hi folks:

Former members of the CASAC sent these comments today to Dr. Cox, but since they criticize both the current composition of the CASAC (most of whose members were named by Mr. Wheeler) and the changes to the NAAQS review process put in place by Mr. Pruitt, I just wanted to see if you have any on-the-record response on EPA's behalf. My deadline is 11:45 this morning.

Thanks,
Sean

Sean Reilly
Reporter
E&E News
202-446-0433 (Desk)
202-316-4596 (Cell)
sreilly@eenews.net
Twitter: @SeanatGreenwire

E&E NEWS
122 C Street, NW, Suite 722, Washington, DC 20001
www.eenews.net • www.eenews.tv
EnergyWire, ClimateWire, E&E Daily, Greenwire, E&ENews PM

Message

From: Schiermeyer, Corry [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B0332276A9784253A5A78F39ECCF1F29-SCHIERMEYER]
Sent: 4/3/2019 2:02:00 PM
To: Abboud, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6f5af791a1842f1adcc088cbf9ed3ce-Abboud, Mic]; Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]
CC: Beach, Christopher [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6b124299bb6f46a39aa5d84519f25d5d-Beach, Chri]; Hewitt, James [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=41b19dd598d340bb8032923d902d4bd1-Hewitt, Jam]; Konkus, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=555471b2baa6419e8e141696f4577062-Konkus, Joh]; McFaul, Jessica [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=51b00479cd7446e4aa7743028c0d8d91-McFaul, Jes]
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Please do. **Deliberative Process / Ex. 5**

Thank you!

From: Abboud, Michael
Sent: Wednesday, April 3, 2019 9:50 AM
To: Woods, Clint <woods.clint@epa.gov>
Cc: Beach, Christopher <beach.christopher@epa.gov>; Hewitt, James <hewitt.james@epa.gov>; Konkus, John <konkus.john@epa.gov>; McFaul, Jessica <mcfaul.jessica@epa.gov>; Schiermeyer, Corry <schiermeyer.corry@epa.gov>
Subject: Re: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Wheeler is addressing this specific point now in the hearing. I may point Sean to his comments.

Sent from my iPhone

On Apr 2, 2019, at 6:13 PM, Woods, Clint <woods.clint@epa.gov> wrote:

Deliberative Process / Ex. 5

On Apr 2, 2019, at 4:27 PM, Abboud, Michael <abboud.michael@epa.gov> wrote:

Any idea on this?

From: Sean Reilly <sreilly@eenews.net>
Sent: Tuesday, April 2, 2019 4:25 PM

To: Abboud, Michael <abboud.michael@epa.gov>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Got it, Michael; let me know ASAP if you have any on-the-record comment.

Also, during this morning's House approps hearing, Mr. Wheeler asserted that the dismissal of the PM review panel was intended to help EPA meet the Clean Air Act's five-year deadline for completing the review. In fact, the last review of the PM standards, according to an EPA website, ended in 2012, meaning that the current review should have finished in 2017 and is thus already two years behind the statutory schedule. If I'm missing some nuance, let me know, but Mr. Wheeler's statement appears to be inaccurate.

Thanks,
Sean

From: Abboud, Michael <abboud.michael@epa.gov>
Sent: Tuesday, April 02, 2019 4:17 PM
To: Sean Reilly <sreilly@eenews.net>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Hey Sean, clearing up inaccuracies from the op-ed. On background see below.

Per Section 109 of the Clean Air Act and multiple court decisions, the Clean Air Scientific Advisory Committee (CASAC) does not devise standards buts advises the Administrator on relevant scientific issues. National Ambient Air Quality Standards (NAAQS) are set by the EPA Administrator at a level requisite to protect public health with an adequate margin of safety for susceptible populations. Under the Clean Air Act, CASAC is to provide advice on air quality criteria, recommending any new NAAQS or revisions of existing criteria or standards as may be appropriate as well as advising the Administrator of: areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised NAAQS; research efforts necessary to provide the required information; the relative contribution to air pollution concentrations of natural as well as anthropogenic activity; and any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such NAAQS.

The chartered CASAC is filled with qualified, independent experts who are have decades of experience working on ozone and particulate matter issues. This includes several individuals who have served or actively participated in previous NAAQS reviews for ozone and particulate matter. The full line up: Dr. Anthony (Tony) Cox, Cox Associates (Chair); Dr. James Boylan, Georgia Department of Natural Resources; Dr. Mark Frampton, University of Rochester Medical Center; Dr. Sabine Lange, Texas Commission on Environmental Quality; Dr. Timothy Lewis, U.S. Army Corps of Engineers; Dr. Corey Masuca, Jefferson County (AL) Department of Health; Dr. Steven Packham, Utah Department of Environmental Quality.

Tasking the chartered CASAC with overseeing these reviews ensures the early engagement of the advisors who ultimately provide advice to EPA, and this action is consistent with the Clean Air Act, regulations implementing the Federal Advisory Committee Act, and CASAC's charter. The chartered CASAC is filled with qualified, independent experts who have decades of experience working on ozone and particulate matter issues and a diverse set of backgrounds in fields like toxicology, engineering,

medicine, ecology, and atmospheric science. EPA also has the ability to seek advice from other experts to assist CASAC as needed for these reviews.

Among the appointees to the chartered CASAC were senior, career scientists and engineers from the Georgia Department of Natural Resources, Texas Commission on Environmental Quality, U.S. Army Corps of Engineers, Jefferson County Department of Health, and Utah Department of Environmental Quality. As Dr. Goldstein should know, members of CASAC are "Special Government Employees" who are appointed to provide the Agency with their own best independent judgment based on their individual expertise, rather than representing their employers. These advisors also abide by federal ethics requirements.

In October 2017, before Administrator Wheeler joined the Agency, EPA issued a memorandum on Strengthening and Improving Membership on EPA Federal Advisory Committees. This policy, which has withstood legal challenges in three federal courts, would facilitate independence, diversity, fresh perspectives, and public participation for several EPA advisory bodies.

Jennifer Orme-Zavaleta, Ph.D., is the Principal Deputy Assistant Administrator for Science for the Office of Research and Development and the EPA Science Advisor.

From: Sean Reilly <sreilly@eenews.net>
Sent: Tuesday, April 2, 2019 2:27 PM
To: Press <Press@epa.gov>
Subject: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Hi folks:

If you have any comment on the criticisms of Administrator Wheeler in this op-ed, please let me know: https://www.washingtonpost.com/opinions/if-i-were-still-working-at-the-epa-i-would-resign/2019/04/02/88e6e2b8-519a-11e9-88a1-ed346f0ec94f_story.html?utm_term=.bc60502562f8.

My deadline is 3:45 this afternoon.

Thanks,
Sean

Sean Reilly
Reporter
E&E News
202-316-4596 (Cell)
202-446-0433 (Desk)
Skype: Sreilly_69
sreilly@eenews.net
Twitter: @SeanatGreenwire

E&E NEWS
122 C Street, NW, Suite 722, Washington, DC 20001
www.eenews.net • www.eenews.tv
EnergyWire, ClimateWire, E&E Daily, Greenwire, E&ENews PM

To: Woods, Clint[woods.clint@epa.gov]; Brazauskas, Joseph[brazauskas.joseph@epa.gov]
Cc: Voyles, Travis[Voyles.Travis@epa.gov]
From: Knapp, Kristien[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=8D4AB10C47264BCA8B12174CDB981942-KKNAPP]
Sent: Tue 12/11/2018 4:19:07 PM (UTC)
Subject: Carper response on CASAC
Carper SAB and CASAC 11-15-18.pdf

Hi Joe and Clint –

I'm following up from our chat before yesterday's 4:30 meeting. The attached letter from Senator Carper and others asks for documents and an explanation about EPA's federal advisory committee selection process and for an explanation about the PM and ozone CASAC panels. Tom Brennan in the SAB staff office has developed responses and pulled documents to respond to the selection process questions. I understand David Dunlap is currently reviewing those. The remaining piece is about the CASAC panels, and we're hoping that Clint can help draft a responsive paragraph or point us toward the right person to ask for that input. I believe there are FOIA requests that overlap with the document request that we can leverage on this topic.

Thanks for your help.
Kristien

Kristien Knapp
Legislative and Oversight Counsel
Office of Congressional Affairs
U.S. Environmental Protection Agency
(202) 564-3277

United States Senate

WASHINGTON, DC 20510

November 15, 2018

The Honorable Andrew Wheeler
Acting Administrator
Environmental Protection Agency
1301 Constitution Ave. NW
Washington, DC 20460

Dear Acting Administrator Wheeler:

We write to request information about the Environmental Protection Agency's (EPA's) recent dismissal and appointment of members to its Clean Air Scientific Advisory Committee (CASAC), its decision to disband two key scientific air pollution advisory panels, and its invitation for public comment on the nomination of 174 scientists to EPA's Science Advisory Board.[1] These actions, taken together with past similar actions, could have the effect of jeopardizing the environment and human health, because they are likely to result in the replacement of renowned scientists who can provide EPA with advice on how to best protect people from the effects of environmental pollution with less qualified, industry representatives who may also have conflicts of interest.

There have been frequent efforts to understand the manner in which EPA is removing and appointing scientists on its federal advisory committees:

- In letters sent to then-Administrator Pruitt in May 2017, Senators Carper[2], Shaheen, and Hassan[3] expressed deep concern about EPA's abrupt dismissal of twelve scientists from EPA's Board of Scientific Counselors, and Senator Carper requested all documents "related to any EPA plans or consideration of plans not to renew the terms of any member of any of EPA's other boards or panels."
- In July 2017, the Government Accountability Office (GAO) accepted a request from 10 Senators[4] to review EPA's process for selecting federal advisory committee members.
- After EPA announced[5] on October 31, 2017 that it would ban scientists from serving on federal advisory committees if they received research funding from EPA, 10 Senators

[1] https://yosemite.epa.gov/sab/sabproduct.nsf/LookupWebProjectsCurrentBOARD/593858E2F8E40BB8852582BA006B57E5/$File/LOCpostSABFY2019.pdf

[2] https://www.epw.senate.gov/public/index.cfm/2017/5/carper-questions-epa-s-abrupt-dismissal-of-scientists-from-agency-board

[3] https://www.shaheen.senate.gov/imo/media/doc/5-18-17%20Letter%20Dismissal%20of%20EPA%20BOSC%20members.pdf

[4] https://www.whitehouse.senate.gov/news/release/senators-call-on-government-watchdog-to-examine-independence-of-epa-advisory-committees

[5] https://www.epa.gov/sites/production/files/2017-10/documents/final_draft_fac_directive-10.31.2017.pdf

asked[6] GAO to expand its probe in order to consider several questions concerning the impact of that policy on EPA's 22 federal advisory committees.

- On January 9, 2018, Senators Carper and Whitehouse sent a letter[7] to EPA asking about the appointment of two scientists—Drs. Louis Anthony (Tony) Cox, Jr., a researcher for the petroleum industry, and S. Stanley Young, a researcher for the pharmaceutical and petroleum industry—to the CASAC and Scientific Advisory Board.[8] According to internal EPA documents, EPA career staff believed that Drs. Cox and Young may have financial conflicts of interest, may risk an appearance of a lack of impartiality, and may lack the scientific expertise necessary to serve on one or more Federal Advisory Committees.
- On February 14, 2018, Senators Carper and Whitehouse sent[9] GAO information about Dr. Cox and Dr. Larry Wolk, who, according to internal EPA documents released by the Senators, was criticized for having "no direct experience in health effects of air pollution," among other things.

There have also been more recent changes to CASAC's membership. On October 10, 2018, EPA announced the appointment of five new members to its CASAC, and the unusual dismissal of three qualified scientists from that committee. Specifically, you removed Judith Chow, Ivan Fernandez, Elizabeth Sheppard from CASAC—all of whom were eligible to serve for another three years—and additionally removed Larry Wolk.

In their place, you appointed Dr. Sabine Lange from the Texas Commission on Environmental Quality and Dr. Steven Packham from the Utah Department of Environmental Quality.[10] Both appointments raise serious concerns related to whether Drs. Lange and Packham should be serving on this Committee. According to documents obtained by the Senate Committee on Environment and Public Works[11], EPA career staff warned that Dr. Lange has "no direct experience serving on national scientific committees" and may have a "possible issue with an appearance of a lack of impartiality" given her publications and presentation on standards for criteria pollutants and her employer's well-established views and positions on various National Ambient Air Quality Standards. Dr. Lange has said that lowering the smog health standard from

---

[6] https://www.whitehouse.senate.gov/news/release/senators-to-gao-examine-pruitts-science-advisory-board-double-standard

[7] https://www.carper.senate.gov/public/index.cfm/2018/1/after-pruitt-bars-scientists-with-epa-grants-from-advisory-committees-carper-and-whitehouse-highlight-concerns-with-new-epa-appointees-conflicts-of-interest

[8] https://yosemite.epa.gov/sab/sabpeople.nsf/webcommittees/CASAC

[9] https://www.epw.senate.gov/public/_cache/files/9/2/92393cc8-538a-4631-ad4c-0a57f8b8e676/3BC9F5D8E67D5EA1329CFE774AAA5228.carper-whitehouse-send-new-internal-epa-documents-to-gao.pdf

[10] https://www.epa.gov/newsreleases/acting-administrator-wheeler-announces-science-advisors-key-clean-air-act-committee

[11] https://www.epw.senate.gov/public/_cache/files/9/2/92393cc8-538a-4631-ad4c-0a57f8b8e676/3BC9F5D8E67D5EA1329CFE774AAA5228.carper-whitehouse-send-new-internal-epa-documents-to-gao.pdf

75 parts per billion (ppb) to 70 ppb "will not measurably impact public health,"[12] has disputed that short-term exposure to smog pollution was linked to respiratory mortality and total mortality,[13] and is considered by some to have "extreme" views regarding the harmfulness of ozone (smog) pollution and the need for protective health standards.[14]

Dr. Packham holds similarly troubling views. In 2014, he presented a poster about air quality and outdoor exercise with the conclusion being that positive effects of exercise outweigh risks of exposure to air pollution—minimizing the impact that air pollution can have on the healthiest and unhealthiest among us. He has also said that individuals can generally deal with increased air pollution, and that while such pollution "can take years off your life" you "don't drop dead." He has also downplayed spikes in formaldehyde presence in Utah.

The appointment of these two scientists (and removal of highly qualified scientists) is particularly concerning in light of EPA's October 10, 2018 announcement[15] that it would disband its Particulate Matter Review Panel and the Ozone Review Panel, which are comprised of outside scientists that have assisted EPA with its statutory obligation under the Clean Air Act to review the adequacy of EPA's standards for six common air pollutants, including particulate matter and ozone. Instead, EPA announced that CASAC – which is now populated with scientists who are generally in favor of lower pollution standards – will serve that function instead.[16] Importantly, Dr. Cox remains the Chair of CASAC, despite a recent investigative report finding that just this year Dr. Cox made claims along the lines "that researchers are overstating the dangers of air pollution," that "his own statistical modeling of health data found no connection between dirty air and respiratory problems or heart attacks," that "there is no proof that cleaning air saves lives," that "there's no link between fine particle pollution and human health," and that "the health benefits from reducing ozone are "exaggerated.""[17]

Most recently, EPA also announced the nomination of 174 scientists to EPA's Science Advisory Board, which provides independent scientific and technical advice to the EPA Administrator on EPA's major programs.[18] This list includes several problematic nominees, including: Dr. James Enstrom, who has served as a policy adviser for the Koch-funded Heartland Institute and "has received funding from the tobacco industry to produce research that downplays the risks of secondhand smoke," and has determined that the PM2.5 NAAQS is "scientifically unjustified"[19];

---

[12] https://www.energyindepth.org/wp-content/uploads/2015/06/Shaw-Lange-and-Honeycutt-EM-2015-Ozone-Health-Benefits.pdf

[13] https://www.energyindepth.org/wp-content/uploads/2015/06/Shaw-Lange-and-Honeycutt-EM-2015-Ozone-Health-Benefits.pdf

[14] https://twitter.com/jwalkenrdc/status/1050456077970657287

[15] https://www.epa.gov/newsreleases/acting-administrator-wheeler-announces-science-advisors-key-clean-air-act-committee

[16] https://www.eenews.net/stories/1060102455

[17] https://www.revealnews.org/article/trumps-air-pollution-adviser-clean-air-saves-no-lives/

[18] https://yosemite.epa.gov/sab/sabproduct.nsf/LookupWebProjectsCurrentBOARD/593858E2F8E40BB8852582BA006B57E5/$File/LOCpostSABFY2019.pdf

[19] https://yosemite.epa.gov/sab/sabproduct.nsf/LookupWebProjectsCurrentBOARD/593858E2F8E40BB8852582BA006B57E5/$File/LOCpostSABFY2019.pdf

Dr. William Happer, who helped former EPA Administrator Scott Pruitt develop the red-team concept and heads the CO2 Coalition, which has received funding to argue that "[m]ore carbon dioxide levels will help everyone, including future generations of our families"[20]; and Dr. Richard Belzer, whose recent clients include Exxon Mobil, the American Chemistry Council and Fitzgerald Glider Kits, which is pushing EPA to roll back air pollution protections on heavy trucks.[21]

At least one academic analysis of EPA since the beginning of the Trump administration has concluded that EPA is already demonstrating signs of being influenced by the industries it regulates.[22] By turning to industry-funded scientists and lobbyists to staff the agency and provide it scientific advice, EPA does little to enhance its credibility as an independent government agency acting to protect the environment and public health. And it is hard to see how the agency will be entitled to deference in court when it seeks to defend rules that show signs of being written and endorsed by industry.

So that we can understand EPA's decision-making process with regard to its federal advisory committees, we ask that you provide us with responses to the following questions and requests for information no later than close of business on December 17, 2018:

1. Please provide us with all documents that are related to EPA's decisions to appoint or not to reappoint any members of any of its federal advisory committees, including but not limited to documents relevant to EPA's assessment of advisory committee nominees' potential conflicts of interest or lack of impartiality. Please provide us with updated responses to this request on a quarterly basis.
2. Please provide a detailed description of the internal process EPA uses to select members for its federal advisory committees, including the manner in which the input of EPA's career staff is solicited and utilized. Please provide us with a copy of all documents that memorialize all or part of this internal selection process.
3. Please provide a detailed explanation as to why EPA has determined to eliminate the Particulate Matter Review Panel and the Ozone Review Panel. Please provide us with all documents that are related to any plan to eliminate either panel. Going forward, for any analogous panel EPA determines to eliminate, please provide us with documents related to that decision.

For purposes of this letter, "documents" includes, but is not limited to, comments, notes, emails, legal and other memoranda, white papers, scientific references, letters, telephone logs, meeting minutes and calendars, photographs, slides and presentations sent or received by or within EPA (including documents sent or received by members of EPA's beach-head and transition teams).

---

[20] https://co2coalition.org/frequently-asked-questions/#1465245604826-64586917-ba84
[21] https://www.eenews.net/climatewire/2018/10/18/stories/1060103611
[22] Lindsey Dillon, *et al.*, "The Environmental Protection Agency in the Early Trump Administration: Prelude to Regulatory Capture," *American Journal of Public Health* (April 2018)

Thank you very much for your attention to this important matter. If you have any questions or concerns, please contact or have your staff contact Michal Freedhoff of the Environment and Public Works Committee staff, at 202-224-8832.

Sincerely,

Tom Carper
United States Senate

Sheldon Whitehouse
United States Senate

Edward J. Markey
United States Senate

Margaret Wood Hassan
United States Senate

Elizabeth Warren
United States Senate

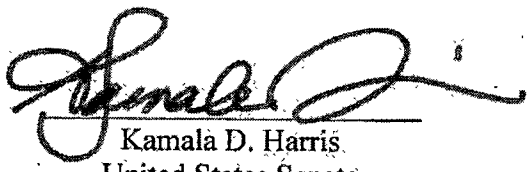
Jeffrey A. Merkley
United States Senate

Kirsten Gillibrand
United States Senate

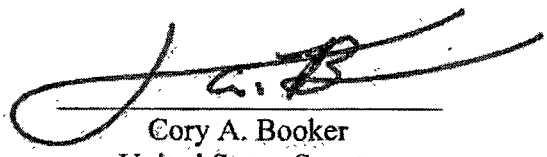
Chris Van Hollen
United States Senate

Ron Wyden
United States Senate

Richard Blumenthal
United States Senate



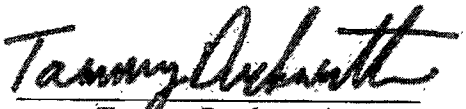
Kamala D. Harris
United States Senate



Cory A. Booker
United States Senate

Jeanne Shaheen
United States Senate

Mazie K. Hirono
United States Senate



Tammy Duckworth
United States Senate

Tina Smith
United States Senator

To: Woods, Clint[woods.clint@epa.gov]
From: Woods, Clint[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: Wed 10/10/2018 10:10:50 PM (UTC)
Subject: Fwd: Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee

FYI - Thanks!

Begin forwarded message:

From: "EPA Press Office" <press@epa.gov>
Date: October 10, 2018 at 5:07:53 PM EDT
To: "woods.Clint@epa.gov" <woods.Clint@epa.gov>
Subject: Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee
Reply-To: press@epa.gov

Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee

Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee

Tasks Chartered Panel to Lead Review of Ozone & Particulate Matter Standards Under Reformed Process

WASHINGTON (October 10, 2018) – Today, U.S. Environmental Protection Agency (EPA) Acting Administrator Andrew Wheeler announced the appointment of five new members of the chartered Clean Air Scientific Advisory Committee (CASAC). This seven-member panel, required under Section 109 of the Clean Air Act, provides critical advice related to National Ambient Air Quality Standards (NAAQS), including about how to set standards that protect public health with an adequate margin of safety, the role of background pollution, research needs, and potential adverse effects from strategies to meet these standards. Consistent with the Clean Air Act and CASAC's charter, Acting Administrator Wheeler also tasked this panel with leading the review of science for any necessary changes to the NAAQS for ozone or particulate matter. As outlined in the May 2018 "Back-to-Basics Process for Reviewing NAAQS" memorandum these changes would be finalized by late 2020.

"These experts will provide critical scientific advice to EPA as it evaluates where to set national standards for key pollutants like ozone and particulate matter," said Acting Administrator Wheeler. **"They are highly qualified and have a diverse set of backgrounds in fields like toxicology, engineering, medicine, ecology, and atmospheric science. These individuals, including five panelists who work in state, local, or federal environmental agencies, will work hard over the next two years to advise EPA in a manner consistent with the Clean Air Act and the protection of public health."**

The seven-member chartered CASAC:

- Dr. Anthony (Tony) Cox, Cox Associates (Chair)
- Dr. James Boylan, Georgia Department of Natural Resources
- Dr. Mark Frampton, University of Rochester Medical Center
- Dr. Sabine Lange, Texas Commission on Environmental Quality
- Dr. Timothy Lewis, U.S. Army Corps of Engineers

- Dr. Corey Masuca, Jefferson County (AL) Department of Health
- Dr. Steven Packham, Utah Department of Environmental Quality

Under the Clean Air Act, CASAC is to provide advice on air quality criteria, recommending any new NAAQS or revisions of existing criteria or standards as may be appropriate as well as advising the Administrator of: areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised NAAQS; research efforts necessary to provide the required information; the relative contribution to air pollution concentrations of natural as well as anthropogenic activity; and any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such NAAQS.

Following the April 2018 Presidential Memorandum on Job Creation and Domestic Manufacturing, EPA issued a memorandum laying out the following principles to reform the process for setting NAAQS:

- Meet statutory deadlines;
- Address all Clean Air Act provisions for NAAQS reviews;
- Streamline and standardize the process for development and review of key policy-relevant information;
- Differentiate science and policy considerations in the NAAQS review process; and
- Issue timely implementation rules or guidance following the revision of a NAAQS.

CASAC operates pursuant to the Clean Air Act, the Federal Advisory Committee Act, and its charter, which is renewed every two years. Consistent with these authorities, the seven-member chartered CASAC will serve as the body to review key science assessments for the ongoing reviews of the ozone and particulate matter NAAQS (last revised in 2015 and 2012, respectively). In the next two weeks, EPA's Office of Research and Development (ORD) intends to make public the draft Integrated Science Assessment for particulate matter for review and comment by CASAC and the public ahead of an in-person meeting in December. ORD also intends to hold a webinar regarding the Integrated Science Assessment for ozone in late October. EPA will also be releasing a draft Integrated Review Plan to outline the expected ozone NAAQS review process. These steps will kick off the scientific review process which will result in EPA finalizing any necessary changes to the ozone or particulate matter NAAQS by the end of 2020.

For more information, visit EPA's NAAQS review and CASAC websites.

Visit The EPA's Newsroom

To: Woods, Clint[woods.clint@epa.gov]; Dunlap, David[dunlap.david@epa.gov]
From: Bolen, Brittany[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=31E872A691114372B5A6A88482A66E48-BOLEN, BRIT]
Sent: Mon 4/8/2019 7:28:56 PM (UTC)
Subject: FW: PM mortality and vsl.

Next time we meet, remind me to mention Al's latest proposed project on VSL.

From: McGartland, Al
Sent: Monday, April 8, 2019 8:32 AM
To: Bolen, Brittany <bolen.brittany@epa.gov>
Cc: Jones, Lindsey <jones.lindsey@epa.gov>
Subject: PM mortality and vsl.

Hi. Pursuant to our conversation last week, I thought this article on a new HEI study illustrates some of the accounting issues

Assuming the PM studies are causal etc the study authors find that on average PM shortens life by .38 years (total exposure to PM). By extrapolation, a regulation that reduces PM by 10 percent would reduce life expect less than .04 years or 14 days.

Here is the article:

study shows PM2.5 mortality risk

April 04, 2019

Recent results from a study on global air pollution show reduced life expectancy caused by exposure to fine particulate matter (PM2.5), with the worst effects shown in developing countries but adverse impacts also seen in the United States, adding to a body of scientific evidence that might support tougher federal air standards.

The just-released **State Of Global Air 2019 report** is a collaboration between the Boston-based Health Effects Institute (HEI), a joint EPA-industry funded research body, and other research institutions.

It draws on data from the Institute for Health Metrics and Evaluation's Global Burden of Disease project, which aims to "quantify health loss from hundreds of diseases, injuries, and risk factors," according to the group's website.

The report shows that U.S. residents face a reduced life expectancy of 0.38 years from PM2.5 exposure, a comparable loss to those in Britain, Germany and Italy. Life expectancy is reduced much more in developing countries. In India, for example, the loss is 1.53 years, while in China it is 1.29.

These findings come as EPA is conducting its Clean Air Act-mandated review of PM2.5 national ambient air quality standards (NAAQS), which the agency aims to complete by December 2020.

The finding would seem to bolster the case for EPA to tighten the existing annual PM2.5 NAAQS, set by the Obama EPA in 2012 at 12 micrograms per cubic meter.

But **an EPA staff analysis** of the latest science drafted to support the review has sharply divided the agency's clean air science advisers, some of whom doubt EPA staff's finding regarding PM2.5 exposure and increased mortality.

The chairman of the Clean Air Scientific Advisory Committee (CASAC), Tony Cox, is a noted skeptic of findings that PM2.5 exposure at levels found in the United States causes premature death. But his views are opposed by at least one panel member, research scientist Mark Frampton.

Despite the lack of any apparent safe threshold for PM2.5 shown in scientific studies, senior EPA air officials have expressed doubts that practical constraints such as monitoring capabilities would even allow the agency to implement a significantly tougher PM2.5 standard.

Related News | Air |
219513

To: Woods, Clint[woods.clint@epa.gov]
From: Block, Molly[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=60D0C681A16441A0B4FA16AA2DD4B9C5-BLOCK, MOLL]
Sent: Wed 10/10/2018 9:13:35 PM (UTC)
Subject: FW: Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee

FYI it's out:

From: EPA Press Office [mailto:press=epa.gov@cmail20.com] **On Behalf Of** EPA Press Office
Sent: Wednesday, October 10, 2018 5:08 PM
To: Block, Molly <block.molly@epa.gov>
Subject: Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee

Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee

Tasks Chartered Panel to Lead Review of Ozone & Particulate Matter Standards Under Reformed Process

WASHINGTON (October 10, 2018) - Today, U.S. Environmental Protection Agency (EPA) Acting Administrator Andrew Wheeler announced the appointment of five new members of the chartered Clean Air Scientific Advisory Committee (CASAC). This seven-member panel, required under Section 109 of the Clean Air Act, provides critical advice related to National Ambient Air Quality Standards (NAAQS), including about how to set standards that protect public health with an adequate margin of safety, the role of background pollution, research needs, and potential adverse effects from strategies to meet these standards. Consistent with the Clean Air Act and CASAC's charter, Acting Administrator Wheeler also tasked this panel with leading the review of science for any necessary changes to the NAAQS for ozone or particulate matter. As outlined in the May 2018 "Back-to-Basics Process for Reviewing NAAQS" memorandum these changes would be finalized by late 2020.

"These experts will provide critical scientific advice to EPA as it evaluates where to set national standards for key pollutants like ozone and particulate matter," said Acting Administrator Wheeler. **"They are highly qualified and have a diverse set of backgrounds in fields like toxicology, engineering, medicine, ecology, and atmospheric science. These individuals, including five panelists who work in state, local, or federal environmental agencies, will work hard over the next two years to advise EPA in a manner consistent with the Clean Air Act and the protection of public health."**

The seven-member chartered CASAC:

- Dr. Anthony (Tony) Cox, Cox Associates (Chair)
- Dr. James Boylan, Georgia Department of Natural Resources
- Dr. Mark Frampton, University of Rochester Medical Center
- Dr. Sabine Lange, Texas Commission on Environmental Quality
- Dr. Timothy Lewis, U.S. Army Corps of Engineers
- Dr. Corey Masuca, Jefferson County (AL) Department of Health
- Dr. Steven Packham, Utah Department of Environmental Quality

Under the Clean Air Act, CASAC is to provide advice on air quality criteria, recommending any new NAAQS or revisions of existing criteria or standards as may be appropriate as well as advising

the Administrator of: areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised NAAQS; research efforts necessary to provide the required information; the relative contribution to air pollution concentrations of natural as well as anthropogenic activity; and any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such NAAQS.
Following the April 2018 Presidential Memorandum on Job Creation and Domestic Manufacturing, EPA issued a memorandum laying out the following principles to reform the process for setting NAAQS:

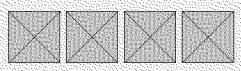
- Meet statutory deadlines;
- Address all Clean Air Act provisions for NAAQS reviews;
- Streamline and standardize the process for development and review of key policy-relevant information;
- Differentiate science and policy considerations in the NAAQS review process; and
- Issue timely implementation rules or guidance following the revision of a NAAQS.

CASAC operates pursuant to the Clean Air Act, the Federal Advisory Committee Act, and its charter, which is renewed every two years. Consistent with these authorities, the seven-member chartered CASAC will serve as the body to review key science assessments for the ongoing reviews of the ozone and particulate matter NAAQS (last revised in 2015 and 2012, respectively). In the next two weeks, EPA's Office of Research and Development (ORD) intends to make public the draft Integrated Science Assessment for particulate matter for review and comment by CASAC and the public ahead of an in-person meeting in December. ORD also intends to hold a webinar regarding the Integrated Science Assessment for ozone in late October. EPA will also be releasing a draft Integrated Review Plan to outline the expected ozone NAAQS review process. These steps will kick off the scientific review process which will result in EPA finalizing any necessary changes to the ozone or particulate matter NAAQS by the end of 2020.
For more information, visit EPA's NAAQS review and CASAC websites.

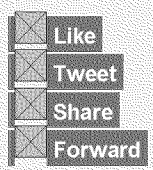
---

https://usenvironmentalprotectionagency.cmail20.com/t/d-l-nnljjt-skytijhud-k/

Visit The EPA's Newsroom



U.S. Environmental Protection Agency
1200 Pennsylvania Avenue Northwest
Washington, D.C. 20004



To: Block, Molly[block.molly@epa.gov]; Jackson, Ryan[jackson.ryan@epa.gov]
Cc: Abboud, Michael[abboud.michael@epa.gov]; Beach, Christopher[beach.christopher@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]; Woods, Clint[woods.clint@epa.gov]; Dunlap, David[dunlap.david@epa.gov]
From: Konkus, John[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: Wed 10/10/2018 9:03:26 PM (UTC)
Subject: RE: FOR REVIEW: Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee - Preview

We have approval. Let's roll!

From: Block, Molly
Sent: Wednesday, October 10, 2018 4:18 PM
To: Jackson, Ryan <jackson.ryan@epa.gov>
Cc: Abboud, Michael <abboud.michael@epa.gov>; Beach, Christopher <beach.christopher@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Konkus, John <konkus.john@epa.gov>; Woods, Clint <woods.clint@epa.gov>; Dunlap, David <dunlap.david@epa.gov>
Subject: FOR REVIEW: Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee - Preview

Per John's email, here's a mocked up press release to review. Thanks!

Molly

Acting Administrator Wheeler Announces Science Advisors for Key Clean Air Act Committee

Tasks Chartered Panel to Lead Review of Ozone & Particulate Matter Standards Under Reformed Process

WASHINGTON (October 10, 2018) - Today, U.S. Environmental Protection Agency (EPA) Acting Administrator Andrew Wheeler announced the appointment of five new members of the chartered Clean Air Scientific Advisory Committee (CASAC). This seven-member panel, required under Section 109 of the Clean Air Act, provides critical advice related to National Ambient Air Quality Standards (NAAQS), including about how to set standards that protect public health with an adequate margin of safety, the role of background pollution, research needs, and potential adverse effects from strategies to meet these standards. Consistent with the Clean Air Act and CASAC's charter, Acting Administrator Wheeler also tasked this panel with leading the review of science for any necessary changes to the NAAQS for ozone or particulate matter. As outlined in the May 2018 "Back-to-Basics Process for Reviewing NAAQS" memorandum these changes would be finalized by late 2020.

"These experts will provide critical scientific advice to EPA as it evaluates where to set national standards for key pollutants like ozone and particulate matter," said Acting Administrator Wheeler. **"They are highly qualified and have a diverse set of backgrounds in fields like toxicology, engineering, medicine, ecology, and atmospheric science. These individuals, including five panelists who work in state, local, or federal environmental agencies, will work hard over the next two years to advise EPA in a manner consistent with the Clean Air Act and the protection of public health."**

The seven-member chartered CASAC:

- Dr. Anthony (Tony) Cox, Cox Associates (Chair)

- Dr. James Boylan, Georgia Department of Natural Resources
- Dr. Mark Frampton, University of Rochester Medical Center
- Dr. Sabine Lange, Texas Commission on Environmental Quality
- Dr. Timothy Lewis, U.S. Army Corps of Engineers
- Dr. Corey Masuca, Jefferson County (AL) Department of Health
- Dr. Steven Packham, Utah Department of Environmental Quality

Under the Clean Air Act, CASAC is to provide advice on air quality criteria, recommending any new NAAQS or revisions of existing criteria or standards as may be appropriate as well as advising the Administrator of: areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised NAAQS; research efforts necessary to provide the required information; the relative contribution to air pollution concentrations of natural as well as anthropogenic activity; and any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such NAAQS.
Following the April 2018 Presidential Memorandum on Job Creation and Domestic Manufacturing, EPA issued a memorandum laying out the following principles to reform the process for setting NAAQS:
Meet statutory deadlines;

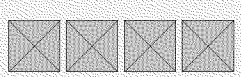
- Address all Clean Air Act provisions for NAAQS reviews;
- Streamline and standardize the process for development and review of key policy-relevant information;
- Differentiate science and policy considerations in the NAAQS review process; and
- Issue timely implementation rules or guidance following the revision of a NAAQS.

CASAC operates pursuant to the Clean Air Act, the Federal Advisory Committee Act, and its charter, which is renewed every two years. Consistent with these authorities, the seven-member chartered CASAC will serve as the body to review key science assessments for the ongoing reviews of the ozone and particulate matter NAAQS (last revised in 2015 and 2012, respectively). In the next two weeks, EPA's Office of Research and Development (ORD) intends to make public the draft Integrated Science Assessment for particulate matter for review and comment by CASAC and the public ahead of an in-person meeting in December. ORD also intends to hold a webinar regarding the Integrated Science Assessment for ozone in late October. EPA will also be releasing a draft Integrated Review Plan to outline the expected ozone NAAQS review process. These steps will kick off the scientific review process which will result in EPA finalizing any necessary changes to the ozone or particulate matter NAAQS by the end of 2020.
For more information, visit EPA's NAAQS review and CASAC websites.

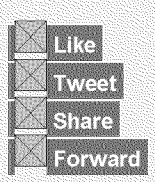
---

https://usenvironmentalprotectionagency.cmail19.com/t/d-i-nnljjt-l-k/

Visit The EPA's Newsroom



U.S. Environmental Protection Agency
1200 Pennsylvania Avenue Northwest
Washington, D.C. 20004



Unsubscribe

Message

From: Konkus, John [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=555471B2BAA6419E8E141696F4577062-KONKUS, JOH]
Sent: 10/15/2018 9:30:24 PM
To: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]
Subject: Re: CASAC Talking Points

Thanks

John Konkus
Environmental Protection Agency
Deputy Associate Administrator
Office of Public Affairs

On Oct 15, 2018, at 5:29 PM, Woods, Clint <woods.clint@epa.gov> wrote:

> FYI - More detail/background on this stuff with quotes. Thanks!
>
> **From:** Woods, Clint
> **Sent:** Monday, October 15, 2018 5:15 PM
> **To:** Jackson, Ryan <jackson.ryan@epa.gov>
> **Subject:** CASAC Talking Points
>
> Last week, EPA announced the appointment of five new members of the chartered Clean Air Scientific Advisory Committee (CASAC). This seven-member panel, required under Section 109 of the Clean Air Act, provides critical advice related to National Ambient Air Quality Standards (NAAQS). EPA also tasked this panel with leading the review any necessary changes to the NAAQS for ozone or particulate matter.
>
> There are several reasons the Agency announced these moves:

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

*Section 109(d)(2)(A) of the Clean Air Act: "The Administrator shall appoint an independent scientific review committee composed of seven members including at least one member of the National Academy of Sciences, one physician, and one person representing State air pollution control agencies."
** "Unless otherwise provided by statute, Presidential directive, or other establishment authority, advisory committee members serve at the pleasure of the appointing or inviting authority. Membership terms are at the sole discretion of the appointing or inviting authority." (41 CFR § 102–3.130)
"From this reasoning, it is not permissible for parent advisory committees simply to 'rubber-stamp' the advice or recommendations of their subcommittees, thereby depriving the public of its opportunity to know about, and participate contemporaneously in, an advisory committee's deliberations." (66 FR 37729)
***CASAC Charter, last updated May 2017: "EPA, or CASAC with the Agency's approval, may form subcommittees or workgroups for any purpose consistent with this charter. Such subcommittees or workgroups may not work independently of the chartered committee and must report their recommendations and advice to the chartered CASAC for full deliberation and discussion. Subcommittees or workgroups have no authority to make decisions on behalf of the chartered committee, nor can they report directly to the EPA."

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

To: Dominguez, Alexander[dominguez.alexander@epa.gov]; Harlow, David[harlow.david@epa.gov]; Lewis, Josh[Lewis.Josh@epa.gov]
From: Woods, Clint[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: Mon 3/18/2019 9:36:59 PM (UTC)
Subject: Fwd: oversight follow up
Pallone Air Actions 1-28-19.pdf
ATT00001.htm
2019-2-8 Pallone-EPA (Climate Actions).pdf
ATT00002.htm

Begin forwarded message:

From: "Voyles, Travis" <Voyles.Travis@epa.gov>
To: "Woods, Clint" <woods.clint@epa.gov>
Cc: "Brazauskas, Joseph" <brazauskas.joseph@epa.gov>
Subject: oversight follow up

Thanks for today Clint. Regarding the CASAC briefing, if you could get me the explanatory overview of the options so we could get that to the Committee in the day or two.

Also, here are the E&C two letters, and if you can just follow up sometime this week with what in terms of briefing we could offer that would be great.

-Travis

--

Travis Voyles
Director of Oversight
Office of Congressional and Intergovernmental Relations
U.S. Environmental Protection Agency
O: (202) 564-6399
C: (202) 309-6931

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 12/12/2018 4:54:47 PM
To: Abboud, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6f5af791a1842f1adcc088cbf9ed3ce-Abboud, Mic]
CC: Block, Molly [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=60d0c681a16441a0b4fa16aa2dd4b9c5-Block, Moll]; Konkus, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=555471b2baa6419e8e141696f4577062-Konkus, Joh]
Subject: Re: Reporting on CASAC

Deliberative Process / Ex. 5 For your background, most epidemiologists have backgrounds in other fields like economics, statistics etc. Both Cox & Masuca have strong background, including published examination of epi issues

On Dec 12, 2018, at 11:49 AM, Abboud, Michael <abboud.michael@epa.gov> wrote:

Deliberative Process / Ex. 5

From: Saiyid, Amena <asaiyid@bloombergenvironment.com>
Sent: Wednesday, December 12, 2018 11:41 AM
To: Abboud, Michael <abboud.michael@epa.gov>
Subject: RE: Reporting on CASAC

Who is the epidemiologist on the current panel?

: : : : : : : : : : : : : : : : : :

Amena H. Saiyid
Air Reporter

Bloomberg Environment

D: 703 341-3695
C: 571-319-6682
asaiyid@bloombergenvironment.com

From: Abboud, Michael [mailto:abboud.michael@epa.gov]
Sent: Wednesday, December 12, 2018 11:34 AM
To: Saiyid, Amena <asaiyid@bloombergenvironment.com>
Subject: RE: Reporting on CASAC

You can attribute the first quote to me. Obviously the quotes in the background section can be attributed to who is listed there. Thanks Amena.

From: Saiyid, Amena <asaiyid@bloombergenvironment.com>
Sent: Wednesday, December 12, 2018 11:31 AM
To: Abboud, Michael <abboud.michael@epa.gov>
Subject: RE: Reporting on CASAC

Thanks Mike. This is very helpful. To whom am I attributing all this?

Amena H. Saiyid
Air Reporter

Bloomberg Environment

D: 703 341-3695
C: 571-319-6682
asaiyid@bloombergenvironment.com

From: Abboud, Michael [mailto:abboud.michael@epa.gov]
Sent: Wednesday, December 12, 2018 11:30 AM
To: Saiyid, Amena <asaiyid@bloombergenvironment.com>
Subject: Reporting on CASAC

Want to make sure you have quotes to any questions regarding the CASAC selection process while covering the hearing.

On The Record: "EPA and CASAC welcome public comments throughout the ozone and particulate matter standard review process. Pursuant to the Clean Air Act, EPA appointed new members to the chartered Clean Air Scientific Advisory Committee (CASAC) on October 10th. These new members are highly qualified and have a diverse set of backgrounds in fields like toxicology, engineering, medicine, ecology, and atmospheric science. Consistent with the Clean Air Act and CASAC's charter, Acting Administrator Wheeler also tasked this panel with leading the review of science for any necessary changes to the NAAQS for ozone or particulate matter."

Background:

In May 2018, EPA issued a memorandum outlining a "Back-to-Basics" process for reviewing National Ambient Air Quality Standards (NAAQS) under the Clean Air Act. This memo ensures that EPA and its independent science advisors follow a transparent, timely, and efficient process in reviewing and revising public health- and welfare-based NAAQS. These reforms were supported by prior leadership of CASAC:

- <!--[if !supportLists]--><!--[endif]-->"A consequence of EPA's non-transparent National Ambient Air Quality Standards (NAAQS) setting process (which the Administrator rectified last month), has been the establishment of some standards near background levels," **said Principal Scientist for Air Improvement Resource, Inc., and former Chairman of EPA's Clean Air Scientific Advisory Committee (1992 – 1996) Dr. George Wolff**. "The policy ramifications of this have not been fully appreciated. Setting the NAAQS at such low levels has also exacerbated unintended adverse impacts. The contributions to uncontrollable background levels and the nature of these adverse effects need to be better understood to inform policy making decisions. It is not only appropriate that CASAC be an integral part of these discussions, but it is also mandated by an often-overlooked section of the Clean Air Act."
- <!--[if !supportLists]--><!--[endif]-->"I have been a participant and observer of the NAAQS review process since 1977 including serving as CASAC Chair and on Panels reviewing all of the criteria pollutants. The process has continued to improve over the decades, however, serious issues still remain. I applaud key principles outlined in the memo," **said Independent Advisor on Toxicology and Human Health Risk Assessment and former Chairman of EPA's Clean Air Scientific Advisory Committee (1988 – 1992) Dr. Roger O. McClellan.** "It is appropriate to commit to meeting the statutory deadline of completing the review of each NAAQS every five years. Coordinating the Ozone and Particulate Matter reviews so they are completed close to each other, in October 2020 for Ozone and December 2020 for PM, should increase the efficiency and effectiveness of the process. The focus needs to be on the policy relevant information that will inform the policy decisions the CAA requires the Administrator to make."

Administrator Wheeler can add more expert consultants to provide relevant expertise to the CASAC if deemed necessary.

Michael Abboud
U.S. Environmental Protection Agency
Office of Public Affairs
M: 202-578-9013

To: Abboud, Michael[abboud.michael@epa.gov]
From: Woods, Clint[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: Wed 4/3/2019 7:44:51 PM (UTC)
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

No need to answer

From: Abboud, Michael
Sent: Wednesday, April 3, 2019 3:26 PM
To: Woods, Clint <woods.clint@epa.gov>
Subject: FW: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Do we want to answer him on this?

From: Sean Reilly <sreilly@eenews.net>
Sent: Wednesday, April 3, 2019 3:24 PM
To: Abboud, Michael <abboud.michael@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Understood, but the statutory requirement to review the CO NAAQS at five-year intervals remains on the books. At this point, does EPA have any plans to begin, however belatedly, a new review of the CO NAAQS, as the law requires?

Thanks,
Sean

From: Abboud, Michael <abboud.michael@epa.gov>
Sent: Wednesday, April 03, 2019 3:19 PM
To: Sean Reilly <sreilly@eenews.net>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

The carbon monoxide NAAQS has not been revised since 1971. On average, the reviews of the CO NAAQS has taken more than a dozen years per review and not resulted in any changes. The state of the science and deadlines from litigation have driven EPA's focus on several criteria pollutants. Between 2015 and 2020, the Agency will complete more NAAQS reviews than at any time in EPA's history.

https://www.epa.gov/co-pollution/table-historical-carbon-monoxide-co-national-ambient-air-quality-standards-naaqs

---

From: Sean Reilly <sreilly@eenews.net>
Sent: Wednesday, April 3, 2019 2:51 PM
To: Abboud, Michael <abboud.michael@epa.gov>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Got it, Michael. One other question for now on a point raised by a critic of the current administration: EPA completed its last NAAQS review for carbon monoxide in 2011 (https://www.govinfo.gov/content/pkg/FR-2011-08-31/pdf/2011-21359.pdf) . Why, eight years later, has the agency not begun a new review of the CO standards, given the importance placed by Mr. Pruitt on meeting statutory deadlines in his back-to-basics memo (https://www.epa.gov/sites/production/files/2018-05/documents/image2018-05-09-173219.pdf) from last year?

Thanks,
Sean

emphasis on the meeting the CAA's five-year review cycle
https://www.govinfo.gov/content/pkg/FR-2011-08-31/pdf/2011-21359.pdf

From: Abboud, Michael <abboud.michael@epa.gov>
Sent: Wednesday, April 03, 2019 1:13 PM
To: Sean Reilly <sreilly@eenews.net>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Sean here is our response, as well as Wheeler's comments from the Senate hearing this morning where he addressed this issue again.

"There is nothing inaccurate about this statement. As reflected in EPA's May 2018 Back-to-Basics NAAQS memo, EPA intends to finalize any necessary revisions to the particulate matter and ozone standards by late 2020. For ozone, this will be the first time the Agency has completed a NAAQS review in five years since 1990. The Clean Air Act calls on EPA to conduct a thorough review of the NAAQS at five-year intervals, but the Agency has historically taken closer to ten years. The previous Administration failed to issue the first key science assessment for particulate matter (despite more than three years passing since the particulate matter NAAQS was revised in 2012) but EPA and CASAC are working expeditiously to complete the overall review as quickly as possible. In the last year, EPA finalized decisions related to the NAAQS for oxides of sulfur and oxides of nitrogen. It is worth noting that the Agency has often faced deadline litigation to finalize revisions to the NAAQS once five years has passed." – EPA spokesman

WHEELER: "Part of the problem was having the subcommittees, which are not required under the statute, took a lot of time to go back and forth between the subcommittee and the full CASAC committee. So we streamlined the CASAC review so we will get both of those reviews, for ozone and PM, done within the five years. They will be done by the end of next year." (Senate Appropriations Subcommittee, 4/3/19)

From: Sean Reilly <sreilly@eenews.net>
Sent: Tuesday, April 2, 2019 4:25 PM
To: Abboud, Michael <abboud.michael@epa.gov>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Got it, Michael; let me know ASAP if you have any on-the-record comment.

Also, during this morning's House approps hearing, Mr. Wheeler asserted that the dismissal of the PM review panel was intended to help EPA meet the Clean Air Act's five-year deadline for completing the review. In fact, the last review of the PM standards, according to an EPA website, ended in 2012, meaning that the current review should have finished in 2017 and is thus already two years behind the statutory schedule. If I'm missing some nuance, let me know, but Mr. Wheeler's statement appears to be inaccurate.

Thanks,
Sean

From: Abboud, Michael <abboud.michael@epa.gov>
Sent: Tuesday, April 02, 2019 4:17 PM
To: Sean Reilly <sreilly@eenews.net>; Press <Press@epa.gov>
Subject: RE: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Hey Sean, clearing up inaccuracies from the op-ed. On background see below.

Per Section 109 of the Clean Air Act and multiple court decisions, the Clean Air Scientific Advisory Committee (CASAC) does not devise standards buts advises the Administrator on relevant scientific issues. National Ambient Air Quality Standards (NAAQS) are set by the EPA Administrator at a level requisite to protect public health with an adequate margin of safety for susceptible populations. Under the Clean Air Act, CASAC is to provide advice on air quality criteria, recommending any new NAAQS or revisions of existing criteria or standards as may be appropriate as well as advising the Administrator of: areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised NAAQS; research efforts necessary to provide the required information; the relative contribution to air pollution concentrations of natural as well as anthropogenic activity; and any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such NAAQS.

The chartered CASAC is filled with qualified, independent experts who are have decades of experience working on ozone and particulate matter issues. This includes several individuals who have served or actively participated in previous NAAQS reviews for ozone and particulate matter. The full line up: Dr. Anthony (Tony) Cox, Cox Associates (Chair); Dr. James Boylan, Georgia Department of Natural Resources; Dr. Mark Frampton, University of Rochester Medical Center; Dr. Sabine Lange, Texas Commission on Environmental Quality; Dr. Timothy Lewis, U.S. Army Corps of Engineers; Dr. Corey Masuca, Jefferson County (AL) Department of Health; Dr. Steven Packham, Utah Department of Environmental Quality.

Tasking the chartered CASAC with overseeing these reviews ensures the early engagement of the advisors who ultimately provide advice to EPA, and this action is consistent with the Clean Air Act, regulations implementing the Federal Advisory Committee Act, and CASAC's charter. The chartered CASAC is filled with qualified, independent experts who have decades of experience working on ozone and particulate matter issues and a diverse set of backgrounds in fields like toxicology, engineering, medicine, ecology, and atmospheric science. EPA also has the ability to seek advice from other experts to assist CASAC as needed for these reviews.

Among the appointees to the chartered CASAC were senior, career scientists and engineers from the Georgia Department of Natural Resources, Texas Commission on Environmental Quality, U.S. Army Corps of Engineers, Jefferson County Department of Health, and Utah Department of Environmental Quality. As Dr. Goldstein should know, members of CASAC are "Special Government Employees" who are appointed to provide the Agency with their own best independent judgment based on their individual expertise, rather than representing their employers. These advisors also abide by federal ethics requirements.

In October 2017, before Administrator Wheeler joined the Agency, EPA issued a memorandum on Strengthening and Improving Membership on EPA Federal Advisory Committees. This policy, which has withstood legal challenges in three federal courts, would facilitate independence, diversity, fresh perspectives, and public participation for several EPA advisory bodies.

Jennifer Orme-Zavaleta, Ph.D., is the Principal Deputy Assistant Administrator for Science for the Office of Research and Development and the EPA Science Advisor.

From: Sean Reilly <sreilly@eenews.net>
Sent: Tuesday, April 2, 2019 2:27 PM
To: Press <Press@epa.gov>
Subject: Washington Post op-ed by former CASAC Chairman Bernard Goldstein

Hi folks:

If you have any comment on the criticisms of Administrator Wheeler in this op-ed, please let me know: https://www.washingtonpost.com/opinions/if-i-were-still-working-at-the-epa-i-would-resign/2019/04/02/88e6e2b8-519a-11e9-88a1-ed346f0ec94f_story.html?utm_term=.bc60502562f8.

My deadline is 3:45 this afternoon.

Thanks,
Sean

Sean Reilly
Reporter
E&E News
202-316-4596 (Cell)
202-446-0433 (Desk)
Skype: Sreilly_69
sreilly@eenews.net
Twitter: @SeanatGreenwire

E&E NEWS
122 C Street, NW, Suite 722, Washington, DC 20001
www.eenews.net • www.eenews.tv
EnergyWire, ClimateWire, E&E Daily, Greenwire, E&ENews PM

To: Konkus, John[konkus.john@epa.gov]
Cc: Block, Molly[block.molly@epa.gov]
From: Woods, Clint[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: Mon 11/26/2018 2:48:55 PM (UTC)
Subject: Re: Criticism of changes to NAAQS review process, etc.

On the record: "EPA and CASAC welcome public comments throughout the ozone and particulate matter standard review process."

On background: Pursuant to the Clean Air Act, EPA appointed new members to the chartered Clean Air Scientific Advisory Committee(CASAC) on October 10th. These new members are highly qualified and have a diverse set of backgrounds in fields like toxicology, engineering, medicine, ecology, and atmospheric science. Consistent with the Clean Air Act and CASAC's charter, Acting Administrator Wheeler also tasked this panel with leading the review of science for any necessary changes to the NAAQS for ozone or particulate matter.

On Nov 26, 2018, at 9:47 AM, Woods, Clint <woods.clint@epa.gov> wrote:

> Think we just use previous statement on EPA and CASAC welcoming comments.
>
> On Nov 26, 2018, at 9:45 AM, Konkus, John <konkus.john@epa.gov> wrote:
>
> > Flagging.
> >
> > **From:** Sean Reilly <sreilly@eenews.net>
> > **Sent:** Monday, November 26, 2018 9:42 AM
> > **To:** Press <Press@epa.gov>
> > **Subject:** Criticism of changes to NAAQS review process, etc.
> >
> > Hi folks:
> >
> > Former members of the CASAC sent these comments today to Dr. Cox, but since they criticize both the current composition of the CASAC (most of whose members were named by Mr. Wheeler) and the changes to the NAAQS review process put in place by Mr. Pruitt, I just wanted to see if you have any on-the-record response on EPA's behalf. My deadline is 11:45 this morning.
> >
> > Thanks,
> > Sean
> >
> > Sean Reilly
> > Reporter
> > E&E News
> > 202-446-0433 (Desk)
> > 202-316-4596 (Cell)
> > sreilly@eenews.net
> > Twitter: @SeanatGreenwire
> >
> > **E&E NEWS**
> > 122 C Street, NW, Suite 722, Washington, DC 20001
> > www.eenews.net • www.eenews.tv
> > EnergyWire, ClimateWire, E&E Daily, Greenwire, E&ENews PM

<CASACcomments.pdf>

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

June 21, 2018

EPA-SAB-18-002

The Honorable E. Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Subject: Science Advisory Board (SAB) Consideration of EPA Planned Actions in the Fall 2017 Unified Agenda of Regulatory and Deregulatory Actions and their Supporting Science

Dear Administrator Pruitt:

As part of its statutory duties, the EPA's Science Advisory Board recently concluded discussions about possible review of the science supporting major EPA planned actions associated with the Fall 2017 Unified Agenda of Regulatory and Deregulatory Actions. The EPA Office of Policy provided notice of the release of this information on December 14, 2017. During its public meeting on May 31, 2018, the SAB discussed whether to review any of the planned regulatory and deregulatory actions in order to provide advice and comment on the adequacy of the scientific and technical basis underlying each, as authorized by section (c) of the Environmental Research, Development and Demonstration Authorization Act.

The SAB focused its attention on nine major planned actions identified by the EPA Office of Policy and published in the *Federal Register*. The SAB convened a Work Group to review the planned actions, conduct fact-finding, and develop recommendations for further consideration by the chartered SAB[1]. At the public meeting, the SAB discussed the Work Group's findings and decided to undertake review of the science supporting two of the actions in the semi-annual Regulatory and Deregulatory Agenda at this time. The SAB also identified one action for which insufficient information was available and deferred a determination until such information is available.

[1] Memorandum: Preparations for Chartered Science Advisory Board (SAB) Discussions of EPA Planned Agency Actions and their Supporting Science in the Fall 2017 Regulatory Agenda https://yosemite.epa.gov/sab/sabproduct.nsf//9263940BB05B89A885258291006AC017/$File/WG_Memo_Fall17_RegRevAttsABC.pdf

The SAB notes that three of the nine major planned actions are listed as long-term actions and another three are listed as Pre-Rule Stage actions. The Office of Management and Budget defines long-term actions as planned actions "under development but for which the agency does not expect to have a regulatory action within the 12 months after publication of this edition of the Unified Agenda" and notes that some long-term actions may only have abbreviated information. OMB defines the Pre-Rule Stage as "actions agencies will undertake to determine whether or how to initiate rulemaking. Such actions occur prior to a Notice of Proposed Rulemaking (NPRM) and may include Advance Notices of Proposed Rulemaking (ANPRMs) and reviews of existing regulations." The SAB considered these early stages of rulemaking for the planned actions to facilitate planning and interaction with the Agency and notes that the Board has the option to defer a decision on whether planned actions merit further review until sufficient information is available.

EPA Planned Actions that Merit SAB Review

Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77): The SAB finds this action merits further review. The SAB Work Group submitted fact-finding questions regarding the types of analyses that may be used to support the action. The EPA responded that the analyses "could be considered to inform the forthcoming NPRM" and that they would assess these issues as they develop the proposed rule. The EPA also responded that the schedule for the rulemaking addressing model years 2022-2025 light-duty vehicle greenhouse gas (GHG) standards has not yet been announced. The SAB notes that EPA, in collaboration with the National Highway Traffic Safety Administration (NHTSA) and the California Air Resources Board (CARB), developed extensive documentation for the mid-term evaluation (MTE), including a technical assessment report and several supporting studies. NHTSA is conducting an MTE and Regulatory Impact Analysis (RIA) regarding fuel economy standards to inform a companion rule to the EPA standards. Key questions that merit an SAB review could include but need not be limited to the following:

- What are the barriers (e.g., price, foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?
- Would or could there be a significant "rebound" effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?
- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel-efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?
- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?
- What are the effects, co-benefits or harms in terms of emissions reductions or increases for other pollutants, and costs benefits of technology options?
- What are the projected fleet level GHG emissions and co-pollutant emission changes associated with various scenarios?

Such a review might begin with existing documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report. To the extent that the agencies have appropriately addressed key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected. A detailed rationale is provided in the Work Group Memorandum [2] and the fact-finding is summarized in Attachment C of that document.

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79): The SAB finds that this action merits review regarding the adequacy of the supporting science. In response to fact-finding questions submitted by the SAB Work Group, the EPA stated that there is "uncertainty about what scientific work, if any, would support" this action, did not describe the approach being taken to develop the needed science, and did not identify any peer review plans. The SAB finds issues, such as: i) determining whether glider vehicles have operational and life cycle emissions less than, comparable to, or greater than new vehicles; ii) answering technical questions regarding the impact of emissions from glider vehicles; and iii) identifying and applying suitable methodologies for assessing the effect of the proposed rule on emissions, air quality and public health, are scientific and technical in nature.

Key questions that merit SAB review could include but need not be limited to the following:

- What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are the key sources of variability and uncertainty in these rates?
- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a "new" glider truck? What are key sources of variability and uncertainty in the comparisons?
- What is the range of possible market penetration of glider trucks into the on road heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet level emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?
- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks regarding GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

Such a review might begin with existing documents developed by EPA, such as the November 20, 2017 test report in which emissions of gliders and conventionally manufactured trucks were compared, and focus on areas where updates are needed. To the extent that EPA appropriately addresses key issues such as those outlined above with adequate peer review, the scope of SAB review could be narrowed or redirected. A detailed rationale is provided in the Work Group Memorandum[3] and the fact-finding effort is summarized in Attachment C of that document.

[2] Ibid.
[3] Ibid.

EPA Planned Actions Awaiting Further Information for SAB Review

Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12): The SAB finds that a review of the scientific and technical basis for this planned action should be deferred until more information is available and, at that time, determine if it is appropriate to provide advice and comment. From the information provided by EPA staff and the pre-rule stage status of the action, the SAB finds that there is not enough information to recommend a review of the underlying science at this time. The EPA indicated that this action would not involve basic economic methodology changes. However, given the concern for consistency, such changes may well have to be considered. Depending upon how the action proceeds and the comments on the ANPRM, it may ultimately involve precedential issues and become an influential scientific or technical work product. The SAB also notes that some of the issues presented by the Work Group regarding RIAs may be appropriate for inclusion in this planned action and review by the SAB (see RIN 2060-AT67).

EPA Planned Actions Not Meriting Further SAB Review

State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units (RIN 2060-AT67): This planned action does not merit review by the SAB. While the SAB does not wish to provide advice on this planned action, it does find several aspects of the underlying "Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal" (RIA) dated October 2017 to be appropriate for an advisory activity by the Board. Specifically, the RIA makes assumptions that warrant further review, as follows: i) sensitivity analysis assumptions about mortality associated with particulate matter at concentrations below the current NAAQS; ii) calculations of climate change benefits on a US-only basis rather than a global scale; and iii) application of a 7% discount rate to estimate foregone GHG mitigation benefits which extend across multiple generations. These aspects may be appropriately considered under the planned action, *Increasing Consistency, Reliability, and Transparency in the Rulemaking Process* (RIN 2010-AA12) as noted above.

Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides (RIN 2060-AT68) and *Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter. (RIN 2060-AS35)*: These actions do not merit further SAB consideration. These actions undergo a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee (CASAC) and its panels. CASAC is a federal advisory committee and has a statutory mandate under the Clean Air Act to advise the Administrator regarding the National Ambient Air Quality Standards (NAAQS). The Sulfur Oxides Review Panel and the Secondary NAAQS Review Panel for Oxides of Nitrogen and Sulfur were specifically constituted, in terms of independent scientific expertise, to review the proposed actions, respectively. CASAC completed its review of the Sulfur Oxides NAAQS on April 30, 2018.

National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review (RIN 2060-AT74): This action does not merit further SAB consideration. While the details of each Residual Risk and Technology Review (RTR) are unique to the sources and pollutants being evaluated, the general approaches and methodologies

employed in EPA RTRs have become standardized, have been employed in numerous previous RTRs, and have been subject to multiple peer reviews over the past 17 years, most recently in 2009. As EPA's RTR methodologies are refined and revised over time, there is a need for periodic peer reviews of the changing methods. The SAB is completing a review of recent revisions to the screening methodologies used to support RTR reviews. Given the extensive past and ongoing peer reviews no additional SAB review is warranted.

Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements (RIN 2070-AK43): This action does not merit further SAB consideration. Per Executive Order 13777, the EPA solicited suggestions about regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda. Specific changes to the 2015 Worker Protection Standard (WPS) regulations at 40 CFR 170 were suggested and EPA is soliciting public input on these specific revisions. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) contains the requirement that EPA must provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any related scientific issues.

Fuels Regulation Modernization - Phase 1 (RIN 2060-AT31): The planned action does not merit further review by the SAB. This long-term action to "streamline and modernize EPA's existing fuels regulations under 40 CFR part 80" is described as "an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones." No new scientific techniques or analysis are contemplated under this planned action, as currently described. Also, the process for this action is in an early stage, with publication of proposed and final regulations planned for 2019. As such, consideration by the SAB is not recommended at this stage in the process.

SAB Requests Improvements in the Descriptions of EPA Planned Actions

The SAB thanks the EPA for providing information for consideration but emphasizes that more complete and timely information is required from the Agency to make recommendations and decisions regarding the science supporting planned actions. To improve the process for future reviews of the semi-annual regulatory agenda, the SAB strongly recommends that EPA enhance descriptions of future planned actions by providing specific information on the peer review associated with the science basis for actions and more description of the scientific and technological bases for the actions. In reviewing the Spring 2017 and Fall 2017 Regulatory Agendas, there were several cases where key information about the planned action, its supporting science and peer review were provided only after specific Work Group requests. The SAB finds that the written responses to fact-finding questions were not comprehensive and participation in the fact-finding teleconference was limited. EPA should provide such information in the initial descriptions provided to the Work Group.

Effective SAB evaluation of planned actions requires the EPA to characterize:

- All relevant key information associated with the planned action;

- The science supporting the regulatory action. If there is new science to be used, provide a description of what is being developed. If the Agency is relying on existing science, provide a short description.
- The nature of planned or completed peer review. To the extent possible, provide information about the type of peer review, the charge questions provided to the reviewers, how relevant peer review comments were integrated into the planned action, and information about the qualifications of the reviewer(s).

The SAB urges the Agency to provide more complete information to support future SAB decisions about the adequacy of the science supporting actions in future regulatory agendas.

On behalf of the SAB, I thank you for the opportunity to support EPA through consideration of the science supporting actions in the Agency's regulatory agenda.

Sincerely,

/S/

Dr. Michael Honeycutt, Chair
Science Advisory Board

Enclosure
(1) Summary of Proposed Actions Considered
(2) Roster of SAB Members

NOTICE

This report has been written as part of the activities of the EPA Science Advisory Board (SAB), a public advisory group providing extramural scientific information and advice to the Administrator and other officials of the Environmental Protection Agency. The SAB is structured to provide balanced, expert assessment of scientific matters related to problems facing the Agency. This report has not been reviewed for approval by the Agency and, hence, the contents of this report do not necessarily represent the views and policies of the Environmental Protection Agency, nor of other agencies in the Executive Branch of the Federal government, nor does mention of trade names of commercial products constitute a recommendation for use. Reports of the SAB are posted on the EPA Web site at http://www.epa.gov/sab.

Summary of Proposed Actions Considered

Proposed actions in the Spring 2017 Unified (Regulatory) Agenda and Regulatory Plan considered by the Science Advisory Board and whether to provide advice and comment on the adequacy of the science supporting the action		
RIN[1]	**Planned Action Title**	**Recommendation**
2060-AT77	Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles	Merits SAB Review
2060-AT79	Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits	Merits SAB Review
2010-AA12	Increasing Consistency, Reliability, and Transparency in the Rulemaking Process	Defer SAB consideration of the planned action until more information is available
2060-AT67	State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units	Does not merit further SAB review
2060-AT68	Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides	Does not merit further SAB review
2060-AT74	National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review	Does not merit further SAB review
2070-AK43	Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements	Does not merit further SAB review
2060-AS35	Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter.	Does not merit further SAB review
2060-AT31	Fuels Regulation Modernization - Phase 1	Does not merit further SAB review

[1]The Regulatory Identification Number provides a hyperlink to the Office of Management and Budget's webpage and information on the planned action provided in the Unified Regulatory Agenda on the OMB website http://www.reginfo.gov/

U.S. Environmental Protection Agency
Science Advisory Board

CHAIR
Dr. Michael Honeycutt, Division Director, Toxicology Division, Texas Commission on Environmental Quality, Austin, TX

MEMBERS
Dr. Rodney Andrews, Director, Center for Applied Energy Research, UK Research, University of Kentucky, Lexington, KY

Dr. Deborah Hall Bennett, Professor and Interim Chief, Environmental and Occupational Health Division, Department of Public Health Sciences, School of Medicine, University of California, Davis, Davis, CA

Dr. Frederick Bernthal, President Emeritus and Senior Advisor to the Board of Trustees, Universities Research Association, Washington, DC

Dr. Bob Blanz, Chief Technical Officer, Arkansas Department of Environmental Quality, North Little Rock, AR

Dr. Todd Brewer, Senior Manager, Partnership Programs, American Water Works Association, Denver, CO

Dr. Joel G. Burken, Curator's Professor and Chair, Civil, Architectural, and Environmental Engineering, College of Engineering and Computing, Missouri University of Science and Technology, Rolla, MO

Dr. Janice E. Chambers, William L. Giles Distinguished Professor and Director, Center for Environmental Health and Sciences, College of Veterinary Medicine, Mississippi State University, Starkville, MS

Dr. Samuel Cohen, Professor, Pathology and Microbiology, University of Nebraska Medical Center, Omaha, NE

Dr. Louis Anthony (Tony) Cox, Jr., President, Cox Associates, Denver, CO
Also Member: CASAC

Dr. Alison C. Cullen, Professor, Daniel J. Evans School of Public Policy and Governance, University of Washington, Seattle, WA

Dr. Otto C. Doering III, Professor, Department of Agricultural Economics, Purdue University, W. Lafayette, IN

Dr. Joel J. Ducoste, Professor, Department of Civil, Construction, and Environmental Engineering, College of Engineering, North Carolina State University, Raleigh, NC

Dr. Susan P. Felter, Research Fellow, Global Product Stewardship, Procter & Gamble, Mason, OH

Dr. R. William Field, Professor, Department of Occupational and Environmental Health and Department of Epidemiology, College of Public Health, University of Iowa, Iowa City, IA

Dr. H. Christopher Frey, Glenn E. Futrell Distinguished University Professor, Department of Civil, Construction and Environmental Engineering, College of Engineering, North Carolina State University, Raleigh, NC

Dr. Joseph A. Gardella, SUNY Distinguished Professor and John and Frances Larkin Professor of Chemistry, Department of Chemistry, College of Arts and Sciences, University at Buffalo, Buffalo, NY

Dr. John D. Graham, Dean, School of Public and Environmental Affairs, Indiana University, Bloomington, IN

Dr. Steven P. Hamburg, Chief Scientist, Environmental Defense Fund, Boston, MA

Dr. Cynthia M. Harris, Director and Professor, Institute of Public Health, Florida A&M University, Tallahassee, FL

Dr. Merlin R. Lindstrom, Vice President Technology, Phillips 66 Research Center, Bartlesville, OK

Dr. Robert E. Mace, The Meadows Center for Water and the Environment, Texas State University, San Marcos, TX

Dr. Clyde F. Martin, Horn Professor of Mathematics, Emeritus, Department of Mathematics and Statistics, Texas Tech University, Crofton, MD

Dr. Sue Marty, Senior Toxicology Leader, Toxicology & Environmental Research, The Dow Chemical Company, Midland, MI

Dr. Kristina D. Mena, Associate Professor, Epidemiology, Human Genetics and Environmental Sciences, School of Public Health, University of Texas Health Science Center at Houston, El Paso, TX

Dr. Surabi Menon, Director of Research, ClimateWorks Foundation, San Francisco, CA

Mr. Robert W. Merritt, Independent Consultant, Houston, TX

Dr. Larry Monroe, Independent Consultant, Braselton, GA

Dr. Thomas F. Parkerton, Senior Environmental Associate, Toxicology & Environmental Science Division, ExxonMobil Biomedical Science, Houston, TX

Dr. Robert Phalen, Professor, Air Pollution Health Effects Laboratory, Medicine, Department of

Medicine, University of California-Irvine, Irvine, CA

Mr. Richard L. Poirot, Independent Consultant, Burlington, VT

Dr. Kenneth M. Portier, Independent Consultant, Athens, GA

Dr. Robert Puls, Owner/Principal, Robert Puls Environmental Consulting, Hilton Head Island, SC

Dr. Kenneth Ramos, Associate Vice-President of Precision Health Sciences and Professor of Medicine, Arizona Health Sciences Center, University of Arizona, Tucson, AZ

Dr. Tara L. Sabo-Attwood, Associate Professor and Chair, Department of Environmental and Global Health, College of Public Health and Health Professionals, University of Florida, Gainesville, FL

Dr. William Schlesinger, President Emeritus, Cary Institute of Ecosystem Studies, Millbrook, NY

Dr. Anne Smith, Managing Director, NERA Economic Consulting, Washington, DC

Dr. Richard Smith, Professor, Department of Statistics and Operations Research, University of North Carolina, Chapel Hill, NC

Dr. Jay Turner, Associate Professor and Vice Dean for Education, Department of Energy, Environmental and Chemical Engineering, School of Engineering & Applied Science, Washington University, St. Louis, MO

Dr. Jeanne M. VanBriesen, Duquesne Light Company Professor of Civil and Environmental Engineering, and Director, Center for Water Quality in Urban Environmental Systems (Water-QUEST), Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA

Dr. Donald vanderVaart, Independent Consultant, Raleigh, NC

Dr. Kimberly White, Senior Director, Chemical Products and Technology Division, American Chemistry Council, Washington, DC

Dr. Peter J. Wilcoxen, Laura J. and L. Douglas Meredith Professor for Teaching Excellence, Director, Center for Environmental Policy and Administration, The Maxwell School, Syracuse University, Syracuse, NY

Dr. S. Stanley Young, Chief Executive Officer, CGStat, Raleigh, NC

SCIENCE ADVISORY BOARD STAFF

Mr. Thomas Carpenter, Designated Federal Officer, U.S. Environmental Protection Agency, Science Advisory Board Washington, DC

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 10/16/2018 11:45:59 AM
To: Jackson, Ryan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=38bc8e18791a47d88a279db2fec8bd60-Jackson, Ry]; Konkus, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=555471b2baa6419e8e141696f4577062-Konkus, Joh]
Subject: Re: CASAC Talking Points

Deliberative Process / Ex. 5

On Oct 15, 2018, at 5:15 PM, Woods, Clint <woods.clint@epa.gov> wrote:

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562